PURCHASING

Purchasing

248-858-0511 | purchasing@oakgov.com

Buyer: WKP   CONTRACT NUMBER: 010199   Event # 0001

CONTRACT between the **COUNTY OF OAKLAND** and **CONTRACTOR**

Not To Exceed Amount: $1,067,622.00	Effective Date: 3/27/2023	Expiration Date:3/26/2028

Contract Description:	Enterprise Storage Solution	

Contractor Address:	**Contract Administrator Information:**
People Driven Technology Inc 6300 Venture Hills Blvd SW Byron Center MI 49315 Vendor No: 40300	Joe Zanchetta zanchettaj@peopledriven.com
Buyer and Purchasing Information:	**County Contract Administrator and Using Department:**
Wendy Pucher OAKLAND COUNTY PURCHASING 2100 Pontiac Lake Rd 41W Waterford MI 48328-2762 248-858-0511 purchasing@oakgov.com	Michael Timm Director Information Technology 1200 N Telegraph Rd 49 West Pontiac Mi 48341 timmmr@oakgov.com

The County and the Contractor may be referred to individually as a "Party" or collectively as the "Parties". The Parties agree to the attached terms and conditions:

FOR THE CONTRACTOR:

SIGN: _____
Joe Zanchetta (Mar 22, 2023 08:13 EDT)

FOR THE COUNTY:

SIGN: _____
Michael R Timm (Mar 22, 2023 08:18 EDT)
Contract Administrator

SIGN: _____
Scott Guzzy (Mar 22, 2023 08:20 EDT)

Scott N. Guzzy, CPPO, MBA, Purchasing Administrator

CLA

This Contract is organized and divided into the following Sections for the convenience of the Parties.

§1.   CONTRACT DEFINITIONS

The following words when printed with the first letter capitalized shall be defined and interpreted as follows, whether used in the singular or plural, nominative or possessive case, and with or without quotation marks:

1.1.   "**Amendment**" means any change, clarification, or modification to this Contract.

1.2.   "**Business Day**" means Monday through Friday from 8:00 a.m. to 5:00 p.m., excluding County designated holidays.

1.3.   "**Claims**" means any loss; complaint; demand for relief or damages; lawsuit; cause of action; proceeding; judgment; penalty; costs or other liability of any kind which is imposed on, incurred by, or asserted against the County or for which the County may become legally or contractually obligated to pay or defend against, whether commenced or threatened, including, but not limited to, reimbursement for reasonable attorney fees, mediation,

facilitation, arbitration fees, witness fees, court costs, investigation expenses, litigation expenses, or amounts paid in settlement.

1.4. "**Confidential Information**" means all information and data that the County is required or permitted by law to keep confidential, which includes computer software, cybersecurity assessments and plans and measures to protect the County's security.

1.5. "**Contract**" means this document and any other documents expressly incorporated herein.

1.6. "**Contractor**" means the entity or person listed under "Contractor" on the first page of this Contract and Contractor Employee.

1.7. "**Contractor Employee**" means any employee; officer; director; member; manager; trustee; volunteer; attorney; licensee; contractor; subcontractor; independent contractor; subsidiary; joint venture; partner or agent of Contractor; and any persons acting by, through, under, or in concert with any of the above, whether acting in their personal, representative, or official capacities. Contractor Employee shall also include any person who was a Contractor Employee at any time during the term of this Contract but, for any reason, is no longer employed, appointed, or elected in that capacity.

1.8. "**Contract Documents**" mean the following documents, which this Contract includes and incorporates:

Exhibits (Applicable if Checked)

1.8.1. ☒ Exhibit I: Insurance Requirements

1.8.2. ☐ Exhibit II: Business Associate Agreement (Health Insurance Portability and Accountability Act Requirements)

1.8.3. ☐ Exhibit III: Requirements for Contractors with Access to County PII (Personally Identifiable Information)

1.8.4. ☐ Exhibit IV: Requirements for Contractors with Access to Criminal Justice Information

1.8.5. ☐ Exhibit V: Federally Funded Contract Requirements

1.8.6. ☐ Exhibit VI: Software License(s)

1.8.7. ☐ Exhibit VII: License for Use of County Servicemark

1.8.8. ☐ Exhibit VIII: Acknowledgement of Independent Employment Status

1.8.9. ☒ Exhibit IX: Scope of Contractor Deliverables/Financial Obligations

1.9.   "**County**" means the County of Oakland, a Municipal and Constitutional Corporation, its departments, divisions, authorities, boards, committees, and "County Agents" as defined below.

1.10.   "**County Agent**" means any elected and appointed officials; directors; board members; council members; commissioners; employees; and volunteers of the County; whether acting in their personal, representative, or official capacities. "County Agent" shall also include any person who was a "County Agent" anytime during the term of this Contract but, for any reason, is no longer employed, appointed, or elected and in that capacity.

1.11.   "**County Data**" means information or data collected, used, processed, stored, or generated in any format, by or on behalf of the County, in connection with the Deliverables, which shall include, but not be limited to: (a) personal health information (PHI) as defined under the Health Insurance Portability and Accountability Act (HIPAA) and Exhibit II, (b) personally identifiable information (PII) as defined in Exhibit III, and (c) Criminal Justice Information defined in Exhibit IV if the Exhibit(s) are incorporated into the Contract. County Data includes Confidential Information as defined in this Contract.

1.12.   "**County Network**" means County owned, leased, or licensed equipment, hardware, and software that is interconnected via fiber optic, wireless, or other communication mediums for the purposes of County hosting, processing, using, sharing, and/or transporting data, video, voice, or any other form of information.

1.13.   "**Day**" means any calendar day, which shall begin at 12:00:00 a.m. and end at 11:59:59 p.m.

1.14.   "**Deliverables**" means goods and/or services provided under this Contract, whether tangible or intangible, and may be more specifically described in the Exhibits.

1.15.   "**Effective Date**" means midnight on the date listed on the first page of this Contract.

1.16.   "**Expiration Date**" means 11:59.59 p.m. on the date listed on the first page of this Contract.

1.17.   "**E-Verify**" means an Internet based system operated by the Department of Homeland Security (DHS) in partnership with the Social Security Administration (SSA) that allows participating employers to electronically verify the employment eligibility of their newly hired employees. Information and the registration process are found at the E-Verify website: https://e-verify.uscis.gov/enroll.

1.18.   "**G2G Marketplace Website**" means an Internet site used by County to provide information to PPBs about businesses providing services to County and agreements used by County and available to PPBs to procure services.

1.19.　"**Intellectual Property**" means any developments, improvements, designs, innovations, and materials that may be the subject of a trademark/servicemark, copyright, patent, trade secret, which includes ideas, concepts, inventions, and processes related to the development and operation of computer software and systems.

1.20.　"**Iran-Linked Business**" is defined in the Michigan Compiled Laws (MCL), specifically MCL 129.312, being Section 2 of Public Act 517 of 2012.

1.21.　"**Not to Exceed Amount**" means the dollar amount listed on the first page of this Contract, unless amended. The "Not to Exceed Amount" is not the County's financial obligation under this Contract, but the maximum amount that can be paid to Contractor during the term of this Contract.

1.22.　"**PPB**" which stands for Participating Public Body, means an entity created by state or Federal law which is primarily funded by or through a governmental authority and which registers to access County's G2G Marketplace Website.

1.23.　"**Proposal**" means Contractor's response or bid to the County's Request for Proposal, Request for Qualifications, or Request for Quotes.

1.24.　 "**Purchase Order**" means the County's written request to Contractor for Deliverables pursuant to this Contract. The Purchase Order may include terms regarding delivery schedule, payment, and transportation.

1.25.　"**Purchasing**" means the Purchasing Division of Oakland County.

§2.　CONTRACT TERM AND RENEWAL

2.1.　**Contract Term.** This Contract shall begin on the Effective Date and shall end on the Expiration Date. Once the Contract has expired Contractor will no longer be listed in the G2G Marketplace, unless a new Contract is entered into by the Parties.

2.2.　**Contract Renewal.** Unless otherwise provided herein, the Parties are under no obligation to renew or extend this Contract after the Expiration Date. This Contract may only be extended by an Amendment.

2.3.　**Legal Effect.** This Contract shall be effective and binding when all of the following occur: (a) this Contract is signed by a Contractor Employee, legally authorized to bind Contractor; (b) this Contract is signed by an authorized County Agent; (c) all Contractor certificates of insurance, required by this Contract, are submitted and accepted by Purchasing; and (d) any other conditions precedent to this Contract have been met.

§3. **CONTRACT ADMINISTRATION AND AMENDMENTS**

3.1. **Contract and Purchase Order Issuance.** Purchasing shall issue this Contract and any Purchase Orders that may be required. Purchasing is the sole point of contact in the County regarding all procurement and contractual matters relating to this Contract and any Purchase Orders. Purchasing is the only County office/department authorized to make any Amendments to this Contract or Purchase Orders.

3.2. **Purchase Orders**. Purchase Orders issued under this Contract are governed by the terms and conditions of this Contract and are included and incorporated herein.

3.3. **Project Managers.** Each Party may designate an employee or agent to act as a Project Manager. If Project Managers are selected, they shall be listed, along with their duties, in Exhibit IX. Unless otherwise stated in Exhibit IX, the County's Project Manager has no authority to amend this Contract.

3.4. **Contract Administrators.** The County shall designate an employee or agent to act as Contract Administrator(s). Contractor may designate its employee or agent to act as Contract Administrator(s). The Contract Administrators shall be listed on the first page of this Contract. The County's Contract Administrator(s) shall be responsible for monitoring and coordinating day-to-day activities under this Contract, reviewing Deliverables and invoices, and submitting requests for Amendments to Purchasing. The County's Contract Administrator(s) have no authority to amend this Contract.

3.5. **Contract Amendments.** All Amendments to this Contract must be in writing. This Contract shall not be amended by any packing slip, Purchase Order, invoice, click through license agreement, or Contractor policies or agreements published on Contractor's website or otherwise. Amendments to this Contract shall be issued only by Purchasing. The Amendment shall be effective when signed by an authorized Contractor Employee and an authorized County Agent.

3.6. **Unauthorized Changes.** Contract changes shall not be effective until an Amendment containing the change is executed according to the procedures described in this Contract. If the Contractor is directed to perform work that Contractor believes is a change in the Contract/Deliverables, then Contractor must notify Purchasing that it believes the requested work is a change to the Contract before performing the requested work. If Contractor fails to notify Purchasing before beginning the requested work, then Contractor waives any claims for additional compensation for performing the requested work. If Contractor begins work that is outside the scope of this Contract or begins work before an Amendment is executed and then

stops performing that work, Contractor must, at the request of the County, undo any out-of-scope work that the County believes would adversely affect the County.

3.7.   **Precedence of Contract Documents.** In the event of a conflict, the terms and conditions contained in Sections 1 through 14 of this Contract shall prevail and take precedence over any allegedly conflicting provisions in all Contract Documents, Exhibits, Purchase Orders, Amendments, and other documents expressly incorporated herein. Terms and conditions contained in Contractor invoices, packing slips, receipts, acknowledgments, click-through licenses, and similar documents shall not change the terms and conditions of this Contract.

§4.   CONTRACT TERMINATION

4.1.   **County Termination.** In addition to any other legal rights the County may have to terminate or cancel this Contract, the County may terminate the Contract as follows:

4.1.1.   **Immediate Termination.** The County may terminate or cancel this Contract, in whole or in part, immediately, upon notice to Contractor, if any of the following occur: (a) Contractor, officer of Contractor, or an owner of a 25% or greater share of Contractor is convicted of a felony criminal offense or a criminal offense involving or related to Contractor's business; or (b) if any third-party funding for this Contract is reduced or terminated.

4.1.2.   **Termination for Convenience.** The County may terminate or cancel this Contract, in whole or part, at any time, upon ninety (90) Days' notice to Contractor, for any reason, including convenience without incurring obligation or penalty of any kind. The effective date for termination or cancellation shall be clearly stated in the notice.

4.2.   **Contractor Termination.** Contractor may terminate or cancel this Contract, in whole or part, upon one hundred and eighty (180) Days' notice to the County, if the County materially breaches any duty or obligation contained herein and within such notice period has failed or has not reasonably attempted to cure the breach. The effective date of termination or cancellation and the specific alleged default shall be clearly stated in the notice to the County.

4.3.   **County's Obligations Upon Termination.** The County's sole obligation in the event of termination or cancellation of this Contract is for payment of the actual Deliverables provided to the County before the effective date of termination. Under no circumstances shall the County be liable for any future loss of income, profits, any consequential damages, any loss of business opportunities, revenues, or any other economic benefit Contractor may have realized but for the termination or cancellation of this Contract. The County shall not be obligated to pay Contractor any cancellation or termination fee if this Contract is cancelled or terminated as provided herein. If the County chooses to terminate the Contract in part, then

the charges payable under this Contract must be equitably adjusted to reflect those Deliverables that are terminated.

4.4. **Contractor's Obligations Upon Termination.** If the County terminates this Contract, for any reason, then Contractor must do the following: (a) cease providing all Deliverables as specified at the time stated in the notice of termination; (b) take any action necessary, or as the County may direct, to preserve and protect Deliverables or other property derived or resulting from the Contract that is in Contractor's possession; (c) return all materials and property provided to Contractor by the County; (d) unless otherwise directed by the County, transfer title in and deliver to the County all Deliverables in the possession of Contractor or Contractor Employees (which Deliverables are transferred to the County "As-Is", except to the extent the amounts paid by the County for these Deliverables include warranties or warranty services and, in that situation, the Deliverables will be transferred with the warranty or warranty services and not "As-Is"); and (e) take any action to mitigate and limit any potential damages, including terminate or limit, as applicable, those subcontracts and outstanding orders for materials and supplies connected with or related to this Contract.

4.5. **Assumption of Subcontracts.** If Contractor is in breach of this Contract and the County terminates this Contract, then the County may assume, at its option, any subcontracts and agreements for Deliverables provided under the Contract and may pursue completion of the Deliverables by replacement Contract or otherwise as the County, in its sole judgment, deems expedient.

§5. SCOPE OF DELIVERABLES AND FINANCIAL/PAYMENT OBLIGATIONS

5.1. **Performance of Deliverables.** Contractor shall provide all Deliverables identified in and as set forth in Exhibit IX, any Purchase Orders, or any Amendments to this Contract.

5.2. **Software License(s).** If Contractor requires County to comply with a software license or any other third-party terms, the software license or other third-party terms must be attached to this Contract in Exhibit VI, and the Parties shall follow the terms and conditions therein. County is not obligated to follow or comply with any software license or other third-party terms that are not attached to or included in this Contract. Unless specifically agreed to by County in writing, if County Agents are required to accept click through license terms or any other terms not included in this Contract to access or use any of the Deliverables in this Contract, the terms and conditions of those click through licenses and other terms are without force and effect.

5.3. **Financial Obligations.** Except as otherwise set forth in this Contract, the County's sole financial obligation under this Contract shall be set forth in the Exhibit IX. The amount and

manner of payment of the financial obligation shall be set forth in Exhibit IX and may be in the Software License Exhibit VI, if applicable, or a Purchase Order.

5.4. **Payment Obligations.** Except as otherwise set forth in the Exhibits, Contractor shall submit an invoice to the County's Contract Administrator itemizing amounts due and owing under this Contract, as of the date of the invoice, within sixty (60) days of Contractor's performance of the Deliverables listed in the invoice. Invoices shall contain the following information: (a) County Contract Number; (b) dates of Deliverables; (c) itemized list of Deliverables; (d) Contractor Tax ID Number (federal and State); (e) licenses; and (f) any other information reasonably requested by Purchasing. Unless otherwise set forth in the Exhibits, the County will pay undisputed invoices, which comply with this section (5.4), within sixty (60) days after receiving the invoice. Unless otherwise set forth in the Exhibits, the County shall only pay Contractor for Deliverables under this Contract and not any subcontractors or assignees of Contractor.

5.5. **Not to Exceed Amount.** The amount due and owing to Contractor, under this Contract, shall not exceed the "Not to Exceed Amount." If Contractor can reasonably foresee that the total financial obligation for the Contract will exceed the "Not to Exceed Amount," then Contractor shall provide Purchasing with notice of this fact as soon as possible, but no later than ten (10) days before this event.

5.6. **County Not Obligated for Penalties/Costs/Fines.** The County shall not be responsible or liable for any cost; fee; fine; penalty; or other assessment of any kind that is incurred or suffered by Contractor in connection with or resulting from Contractor's performance of this Contract under any circumstances.

5.7. **Set-Off of County Costs.** If the County incurs any costs (not specified in this Contract), loss or damage that is caused by or results from Contractor or Contractor Employees, then the County has the right to set-off those costs, loss, and/or damage from any amounts due and owing Contractor. This set-off includes, but is not limited to, withholding payment in an amount equal to the cost of any County-provided equipment, supplies, or badges, or other property that are not returned by Contractor upon completion, termination, or cancellation of this Contract. County also reserves the right at any time to set-off any amounts it owes to Contractor under this Agreement against any amounts that Contractor owes to County.

5.8. **In-Kind Services.** Unless expressly provided herein, this Contract does not authorize any in-kind services by either Party.

§6.   COUNTY'S G2G MARKETPLACE ADMINISTRATION.

6.1.   **Deliverables and Terms Extended to PPBs.** After a competitive bidding and selection process by County, Contractor was chosen to provide the Deliverables, described more fully in the Exhibit IX, to County. Contractor shall offer the pricing, terms, and conditions in this Contract to a PPB, to enable a PPB to make purchases from Contractor according to the terms herein. Notwithstanding the foregoing, Contractor and a PPB may negotiate customized terms at their own discretion.

6.2.   **NO COUNTY LIABILITY.** COUNTY SHALL NOT BE A PARTY TO A CONTRACT OR PURCHASE ORDER OF ANY TYPE BETWEEN CONTRACTOR AND A PPB. COUNTY SHALL NOT HAVE ANY LIABILITY, OF ANY SORT, TO CONTRACTOR, A PPB, OR ANY OTHER THIRD PARTY, FOR ANY HARM, DAMAGE, LOSS, OR ACTION THAT MAY ARISE FROM PURCHASES MADE BY ANY PPB PURSUANT TO THE TERMS OF THIS CONTRACT.

6.3.   **Contractor and PPB Direct Dealing.** PPBs must deal directly with Contractor for any transactions such as purchases, invoices, price questions, disputes, etc. that relate to their individual agreement with Contractor. Contractor must respond timely to PPB inquiries. Failure to do so may result in County removing the Contract and Contractor's Information from the G2G Marketplace Website.

6.4.   **G2G Marketplace Website.** County will provide the following information on its G2G Marketplace website:

6.4.1.   State that the Contract was the result of a competitive bidding process.

6.4.2.   Provide Contractor's contact information for inquiries.

6.4.3.   Acknowledge that the County will receive a benefit from purchases subject to this Contract.

6.4.4.   Provide a County Liaison to answer questions concerning the expiration date of the Contract, the procedure for purchasing off the Contract, and the competitive bidding process followed by County.

6.5.   **Contractor Information.** Contractor shall provide the following information to County and shall update the information timely whenever changes occur:

6.5.1.   Description of Contractor's **Deliverables** relating to those requested in the Request for Proposal will be placed on the G2G Marketplace Website.

6.5.2.   Every six months Contractor shall provide County with a "Contract Usage Statement" which means the names, Scope of Services selected, quantities purchased, and dollar amount of each agreement signed by a PPB using this Contract. Contractor may provide the dollar amount of an agreement only if a PPB will not permit disclosure of the other items. Failure to

provide the Contract Usage Statement information to County may result in Contractor being removed from the G2G Marketplace website.

6.5.3. The names of two representatives to act as a primary and secondary point of contact to provide County with the Contract Usage Statements and other information required in this Contract.

6.6. **Administrative Fee.** In recognition of the benefits to Contractor for County providing information to PPBs and potential participants, and the costs savings to Contractor for having this information available, Contractor shall pay County an administrative fee or other benefit described below in this section (the "Administrative Fee") if Contractor offers the pricing, terms, and/or conditions in this Contract to a PPB. The Administrative Fee will correspond to three percent (3%) of the revenue Contractor receives from orders, purchases, and/or contracts it has entered into with PPBs who are receiving goods or services from Contractor based on the pricing, terms, and/or conditions of this Contract. Contractor shall pay the Administrative Fee to the County on a quarterly basis after the Contractor is paid by the PPB. County may provide Contractor with additional instructions regarding the procedure and/or manner of paying the Administrative Fee to County. In addition to and without limiting any other remedies allowed by law or equity, Contractor's failure to timely pay the Administrative Fee may, in County's sole discretion, result in removal of Contractor from the G2G Marketplace website.

§7.   CONTRACTOR'S WARRANTIES AND ASSURANCES

7.1. **Full Knowledge of Contract Expectations.** Contractor warrants that before submitting its Proposal and/or entering into this Contract, it had a full opportunity to review all County requirements and/or expectations for this Contract. Contractor is responsible for being adequately and properly prepared to execute this Contract. Contractor has satisfied itself in all material respects that it will be able to perform the Contract as specified herein.

7.2. **Complete and Accurate Representations.** Contractor certifies that all statements, assurances, records, and materials submitted to the County in connection with seeking and obtaining this Contract have been truthful, complete, and accurate.

7.3. **Access to Contractor Policies.** If the Parties agree in this Contract to follow any Contractor polices, such as acceptable use or privacy policies, then Contractor shall retain each version of such policy with the effective dates and shall promptly provide such to the County, if requested.

7.4. **Grant Compliance.** If any part of this Contract is supported or paid for with any State, federal, or other third-party funds granted to the County, then Contractor shall comply with all

applicable grant requirements. Upon request of Contractor, the County shall provide Contractor with a copy of the applicable grant requirements.

7.5.   **Contractor Incidental Expenses.** Except as otherwise expressly provided in this Contract, Contractor shall be solely responsible and liable for all costs and expenses associated or needed to perform this Contract, including, but not limited to, any professional dues, association fees, license fees, fines, taxes, and penalties.

7.6.   **Equipment and Supplies.** Contractor is responsible for providing all equipment and supplies to perform this Contract, which are not expressly required to be provided by the County.

7.7.   **Contractor Employees.**

7.7.1.   **Number and Qualifications of Contractor Employees.** Contractor shall employ and assign qualified Contractor Employees as necessary and appropriate to perform this Contract. Contractor shall ensure all Contractor Employees have the knowledge, skill, and qualifications to perform this Contract and possess any necessary licenses, permits, certificates, and governmental authorizations as may be required by law.

7.7.2.   **Control and Supervision of Contractor Employees.** Contractor shall solely control, direct, and supervise all Contractor Employees with respect to all Contractor obligations under this Contract. Contractor will be solely responsible for and fully liable for the conduct and supervision of any Contractor Employees.

7.7.3.   **Removal or Reassignment of Personnel at the County's Request.** Contractor shall remove a Contractor Employee performing work under this Contract at the County's request provided that the County's request is based on legitimate, good-faith reasons. Replacement personnel for the removed person must be fully qualified for the position. If the removal of a Contractor Employee results in an unanticipated delay, which is attributable to the County, then this delay shall not be considered a breach of the Contract and the terms and conditions of this Contract effected by the removal will be adjusted accordingly.

7.7.4.   **Contractor Employee Identification.** If requested by the County, Contractor Employees shall wear and display a County-provided identification badge at all times while working on County premises. In order to receive a County identification badge, a Contractor Employee shall sign the "Acknowledgement of Independent Contractor Status" form, Exhibit VIII to this Contract. Contractor shall return all County-provided identification(s) upon completion of Contractor's obligations under this Contract.

7.7.5.   **Background Checks.** At the County's request, Contractor Employees performing work under this Contract shall be subject to a background check by the County. The scope of the background check is at the discretion of the County and the results will be used to determine

Contractor Employee's eligibility to perform work under this Contract. Any request for background checks will be initiated by the County and will be reasonably related to the type of work requested. Contractor and Contractor Employees shall provide all information or documents necessary to perform the background check.

7.7.6. **Contractor Employee Expenses.** All Contractor Employees shall be employed at the Contractor's sole expense (including employment-related taxes and insurance). Contractor warrants that all Contractor Employees shall fully comply with and adhere to the terms of this Contract. Contractor shall be solely liable for all applicable Contractor Employees' federal, state, or local payment withholdings or contributions and/or all Contractor Employee related pension or welfare benefits plan contributions under federal or state law. Contractor shall indemnify, defend, and hold the County harmless for all Claims against the County by any Contractor Employee, arising out of any contract for hire or employer-employee relationship between Contractor and any Contractor Employee including, but not limited to, Worker's Compensation, disability pay, or other insurance of any kind.

7.7.7. **Contractor's Compliance with the Patient Protection and Affordable Care Act.** If Contractor is subject to the Patient Protection and Affordable Care Act ("ACA"), PL 111-148, 124 Stat 119, then Contractor shall ensure that all Contractor Employees, under assignment to the County, and their dependents, as defined by the ACA, are provided with or have access to insurance as required by the ACA. If Contractor is subject to the ACA, Contractor warrants it offers group health coverage to Contractor Employees and their dependents that is affordable, that provides minimum essential coverage and value, and that each offer of coverage meets the timing requirements of the ACA. Contractor warrants, whether or not it is subject to the ACA, that it will pay all applicable fees, taxes, or fines, as set forth in the employer mandates of the ACA under Tax Code §4980H and related regulations for any Contractor Employee, whether the fee, tax, or fine is assessed against the Contractor or the County.

7.8. **Acknowledgment of Independent Contractor Status.**

7.8.1. **Independent Contractor.** Nothing in this Contract is intended to establish an employer-employee relationship between the County and Contractor or any Contractor Employee. In no event, shall Contractor Employees be deemed employees, agents, volunteers, or subcontractors of the County. Contractor shall ensure that Contractor Employees are apprised of their status and the limitations independent contractors have of this status.

7.8.2. **Contractor/Contractor Employee Representations.** Contractor and/or Contractor Employees shall not represent themselves as County employees. Contractor shall ensure that Contractor Employees do not represent themselves as County employees.

7.8.3.   **County Benefits and Plans.** Contractor and Contractor Employees shall not be entitled to participate in any County employee benefit plans and programs, including but not limited to, retirement, deferred compensation, insurance (including without limitation, health, disability, dental, and life), and vacation pay. This limitation includes access to benefit plans and programs that are not described by a written plan. However, Contractor Employees who are retired County Employees may receive vested post-employment benefits such as retiree health care and pension benefits from Oakland County.

7.8.4.   **County Reliance.** The County entered into this Contract in reliance of the representations made by Contractor regarding its understanding of the role of independent contractors, its stated relationship to Contractor Employees, and other representations Contractor has made regarding the management and performance oversight of Contractor Employees.

7.8.5.   **Independent Employment Status.** If Contractor provides Contractor Employees for staffing and/or leasing services to County, those Contractor Employees shall sign Exhibit VIII, Acknowledgement of Independent Employment Status, prior to performing services for the County.

7.9.   **Permits and Licenses.** Contractor shall be responsible for obtaining and maintaining, throughout the term of this Contract, all licenses, permits, certificates, governmental authorizations, and business/professional licenses necessary to perform this Contract. Upon request by the County, Contractor shall furnish copies of any permit, license, certificate, or governmental authorization necessary to perform this Contract.

7.10.   **E-Verify.** In accordance with Miscellaneous Resolution No. 09116 (BOC Minutes, July 30, 2009, pp 37-38), unless otherwise exempted, all service contractors who wish to contract with the County to provide services must first certify they have registered with, will participate in, and continue to utilize, once registered, the E-Verify Program (or any successor program implemented by the federal government or its departments or agencies) to verify the work authorization status of all newly hired employees employed by the Contractor. Breach of this term or condition is considered a material breach of this Contract. Contractor's execution of this Contract constitutes a certification that they are authorized to certify on behalf of Contractor and do hereby certify on behalf of Contractor that the Contractor has registered with, has and will participate in, and does and will continue to utilize once registered and throughout the term of this Contract and any permissible extension hereof, the E-Verify Program (or any successor program implemented by the federal government or its departments or agencies) to verify the work authorization status of all newly hired employees employed by the Contractor.

7.11.   **Iran-Linked Business Certification.** Contractor certifies that it is not an Iran-Linked Business. Contractor further certifies that it was not an Iran-Linked Business at the time it submitted its Proposal for this Contract. Contractor must promptly notify the County, if Contractor becomes an Iran-Linked Business at any time during this Contract.

7.12.   **Foreign Adversary Certification.** If Contractor supplies technology or equipment to County, Contractor certifies that the technology and/or equipment was not produced, assembled or manufactured by a foreign adversary, as defined, and as prohibited by the federal government.

7.13.   **Taxes.**

7.13.1.   **Contractor Taxes.** Contractor shall collect and pay its local, state, and federal taxes, including but not limited to, all employment taxes, sales taxes, personal property taxes, and real property taxes. The County shall not be liable to or required to reimburse Contractor for any local, state, or federal tax of any kind.

7.13.2.   **County Tax-Exempt.** The County is exempt from state and local sales tax, personal property tax, and real property tax. Prices under this Contract shall not include taxes, unless the County is not tax-exempt for a specific Deliverable. Exemption certificates for sales tax will be furnished upon request.

7.14.   **Warranty for Services.** Contractor warrants that all Deliverables that are services shall be performed in compliance with all applicable laws, statutes, regulations, ordinances, requirements and specifications in the Exhibits, industry best practices and care, professional standards, and in a diligent, workmanlike, and expeditious manner. Contractor acknowledges and agrees that time is of the essence for all Deliverables that are services.

7.15.   **Warranty for Goods.** All Deliverables that are goods shall be subject to the following warranties:

7.15.1.   **Warranty of Merchantability.** Goods provided by Contractor pursuant to this Contract shall: (a) be merchantable; (b) be of good quality; (c) be fit for their ordinary purpose; (d) be adequately contained and packaged; and (e) conform to the specifications and descriptions contained in this Contract. Contractor acknowledges and agrees that time is of the essence for providing all Deliverables that are goods.

7.15.2.   **Warranty of Fitness for a Particular Purpose.** If Contractor knows or has reason to know that the goods will be used for a particular purpose and the County is relying on Contractor's skill or judgment to select or furnish the goods, then there is a warranty that the goods are fit for a particular purpose.

7.15.3. **Warranty of Title.** All goods conveyed to the County shall be conveyed and transferred: (a) with good title; (b) free from any security interest, lien, or encumbrance that the County did not have knowledge of when the Contract was executed; and (c) free of any rightful claim of infringement or similar claim by a third-party.

7.16. **ADA and Section 508 Compliance.** If Contractor is providing a Deliverable that requires County Agents or the public to use a software application or to access a website, Contractor warrants that end users can utilize the software or access the website in accordance with the accessibility requirements of the ADA and the Rehabilitation Act of 1973. Contractor's Deliverable will conform, where relevant, to level AA of the World Wide Web Consortium (W3C) Web Content Accessibility Guidelines (WCAG) 2.0. Contractor may provide a description of conformance with the above-mentioned specifications by means of a completed Voluntary Product Accessibility Template for WCAG 2.0 (WCAG 2.0 VPAT) or another comparable document. Any additional compliance requirements shall be specified in the Scope of Contractor's Deliverables Exhibit IX.

§8. LIABILITY

8.1. **CONTRACTOR INDEMNIFICATION.** CONTRACTOR SHALL INDEMNIFY, DEFEND, AND HOLD THE COUNTY HARMLESS FROM ALL CLAIMS, INCURRED BY OR ASSERTED AGAINST THE COUNTY BY ANY PERSON OR ENTITY, WHICH ARE ALLEGED TO HAVE BEEN CAUSED DIRECTLY OR INDIRECTLY FROM THE ACTS OR OMISSIONS OF CONTRACTOR OR CONTRACTOR'S EMPLOYEES. THE COUNTY'S RIGHT TO INDEMNIFICATION IS IN EXCESS AND ABOVE ANY INSURANCE RIGHTS/POLICIES REQUIRED BY THIS CONTRACT.

8.2. **NO INDEMNIFICATION FROM THE COUNTY.** CONTRACTOR SHALL HAVE NO RIGHTS AGAINST THE COUNTY FOR INDEMNIFICATION, CONTRIBUTION, SUBROGATION, OR ANY OTHER RIGHT TO BE REIMBURSED BY THE COUNTY, EXCEPT AS EXPRESSLY PROVIDED HEREIN.

8.3. **COUNTY LIMITATION OF LIABILITY.**

8.3.1. COUNTY SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, INDIRECT, REMOTE, SPECULATIVE, PUNITIVE, EXEMPLARY, LIQUIDATED, TREBLE, OR SPECIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFIT, OPPORTUNITY, USE, REVENUE, DATA, OR GOODWILL, WHETHER BASED IN WHOLE OR IN PART IN CONTRACT, TORT, EQUITY, STRICT LIABILITY, UNDER STATUTE, OR ANY OTHER THEORY OF LIABILITY, REGARDLESS OF WHETHER SUCH DAMAGES WERE FORESEEABLE OR CONTEMPLATED AND EVEN IF COUNTY WAS ADVISED OR AWARE OF THE POSSIBILITY OF SUCH DAMAGES.

8.3.2. COUNTY SHALL NOT BE LIABLE IN CONTRACT, TORT, EQUITY, STRICT LIABILITY, UNDER STATUTE, OR ANY OTHER THEORY OF LIABILITY, FOR TOTAL AGGREGATE DAMAGES IN EXCESS OF COUNTY'S PAYMENT OBLIGATIONS TO CONTRACTOR FOR THE DELIVERABLES UNDER THIS CONTRACT.

§9.   INSURANCE AND BOND REQUIREMENTS

9.1.   **Contractor Provided Insurance.** At all times during this Contract, Contractor shall obtain and maintain insurance according to the requirements listed in Exhibit I.

9.2.   **Contractor Provided Bonds.** Pursuant to Public Act 213 of 1963, if the Contract Not to Exceed Amount exceeds fifty thousand dollars ($50,000.00) and the Contract is for the construction, alteration, or repair of any public building or public work or improvement of the County, then the Contractor shall furnish, at its sole cost, a performance bond and a payment bond to the County, which shall become binding upon execution of the Contract. Each bond shall be in an amount fixed by the County, as set forth in Exhibit IX, but in no event shall each bond be less than 25% of the Contract Not to Exceed Amount.

§10.   INTELLECTUAL PROPERTY

10.1.   **Contractor Use of County Licensed Software**. In order for Contractor to perform this Contract, the County may permit Contractor or Contractor Employees to access certain Software licensed to the County. Contractor or Contractor Employees shall not transfer, remove, use, copy, or otherwise provide or make available such Software or documentation to any other person or entity, for any purpose, without the prior written consent of the County and/or the licensor. Furthermore, neither Contractor nor Contractor Employee shall produce a source listing, decompile, disassemble, or otherwise reverse engineer any Software. Neither Contractor nor Contractor Employee shall use any Software contrary to the provisions of any applicable Software license agreement or state or federal law.

10.2.   **Contractor License to Use County Servicemarks**. If this Contract involves the use of County servicemarks, then Contractor is granted a license to use the servicemarks subject to the terms listed in Exhibit VII. Contractor shall only use the servicemarks as directed by the County in Exhibit VII. If Exhibit VII is not selected and attached to this Contract, Contractor shall not and has no right to use County servicemarks.

10.3.   **Assignment of Rights**. In consideration for the performance of this Contract and the fees paid to Contractor, Contractor agrees to the following: (a) Contractor shall have no copyright, patent, trademark, or trade secret rights in County Intellectual Property; (b) any and all

programs, inventions, and other work or authorship developed by Contractor while providing Deliverables to the County are works made for hire, created for, and owned exclusively by the County, unless otherwise specified in the Contract; (c) Contractor assigns to the County all rights and interest in County Intellectual Property, which Contractor has made or conceived or may make and conceive, either solely or jointly with others, either on or off County premises while performing this Contract or with the use of the time, material, or facilities of the County; and (d) Contractor and its applicable Contractor Employees shall sign any documents necessary for the County to register patents, copyrights, or trademarks with federal or state agencies. Contractor shall ensure Contractor Employees assign their rights and interests in County Intellectual Property to the County.

10.4.   **Infringement Remedies.** If, in either Party's opinion, any of the services or Deliverables supplied by Contractor or Contractor Employees are likely to become the subject of a copyright, patent, trademark, or trade secret infringement claim, Contractor shall at its own expense: (a) procure for County the right to continue using the services or Deliverables, or if this option is not reasonably available to Contractor; (b) replace or modify the same so that it becomes non-infringing; or (c) accept its return by County with appropriate credits to County and reimburse County for any losses or costs incurred as a consequence of County ceasing its use and returning it.

§11.   CONFIDENTIAL INFORMATION

11.1.   **Contractor Use of Confidential Information.** Contractor and Contractor Employees shall use appropriate safeguards to protect the confidentiality and integrity of Confidential Information. Contractor shall not reproduce, provide, disclose, or give access of Confidential Information to any Contractor Employee or third-party not having a legitimate need to know. Contractor and Contractor Employees shall only use the Confidential Information for performance of this Contract. Notwithstanding the foregoing, Contractor may disclose the Confidential Information, if required by law, statute, or other legal process; provided that Contractor: (a) gives the County prompt written notice of the impending disclosure; (b) provides reasonable assistance to the County in opposing or limiting the disclosure; and (c) makes only such disclosure as is compelled or required. This Contract imposes no obligation upon Contractor with respect to any Confidential Information which Contractor can establish by legally sufficient evidence: (a) was in possession of or was known by Contractor, prior to its receipt from the County, without any obligation to maintain its confidentiality; or (b) is obtained by Contractor from a third party having the right to disclose it, without an obligation to keep such information confidential.

11.2. **County Confidentiality Obligations.** County has no obligation to Contractor to keep confidential any information or records that are required to be disclosed by County under the Michigan Freedom of Information Act, 1976 PA 442, as amended (the "FOIA") nor shall County be obligated to inform or provide notice to Contractor regarding the disclosure of information or records that are required to be disclosed under the FOIA. Furthermore, County may disclose Confidential Information to third parties if required by law, statute, subpoena, court order, or other legal process.

§12.   **COUNTY DATA.** If Contractor uses or possesses County Data in the performance of this Contract, then the following provisions contained in this section apply:

12.1. **Use of County Data.** Contractor and Contractor Employees shall have a limited license to County Data, including a license to collect, process, store, generate and display County Data but only to the extent necessary to provide services under this Contract. Contractor and Contractor Employees may not use, sell, rent, transfer, distribute, or otherwise disclose or make available County Data to any third-party, for Contractor's own purposes, or for the benefit of anyone other than the County, without the County's prior written consent, unless otherwise provided for within an Exhibit to this Contract.

12.2. **Unauthorized Access/Disclosure or Theft of County Data.** Contractor or Contractor Employees shall notify the County's Chief Information Office as soon as practicable but no later than forty-eight (48) hours of "Discovery" of suspected unauthorized access, acquisition, disclosure, or theft of County Data (a "Security Breach"). "Discovery" means the first day on which the Security Breach is known to Contractor or Contractor Employees. Upon Discovery of a Security Breach, Contractor shall do the following: (a) take reasonable measures to promptly cure the deficiencies relating to the Security Breach in order to secure County Data; (b) cooperate with the County in investigating the occurrence, including making available all relevant records, logs, files, and data reporting materials required upon request by the County; and (c) comply with all applicable federal or state laws and regulations pertaining to unauthorized disclosures or as otherwise directed by the County. If Contractor uses or possesses County Data described in Exhibit II (HIPAA), Exhibit III (PII), or Exhibit IV (CJIS), Contractor shall follow the procedures in the applicable Exhibits governing the unauthorized access/disclosure or theft of County Data.

12.3. **Storage of County Data.** Contractor shall only store and process County Data at and from data centers located within the United States ("U.S."). Contractor shall not permit Contractor Employees to store County Data on portable devices, including, but not limited to, personal computers, tablets, laptops, and phones, except for portable devices that encrypt County Data at rest, have up-to-date firewall and antivirus protection, require multi-factor authentication

to access, and are used and kept within the U.S. Contractor may permit its Contractor Employees to access County Data remotely within the U.S. but only as required to provide the Deliverables.

12.4.   **Requirements for PCI Data**. If Contractor possesses, stores, processes, or transmits County Data that is considered Payment Card Industry (PCI) Data by the PCI Security Standards Council, Contractor shall comply with PCI Data Security Standard (DSS) and shall provide the County with a copy of its PCI DSS Attestation of Compliance and its Certificate of Compliance with PCI Data Security Standard on or before the Effective Date. Contractor warrants that it will keep its Certification of Compliance with PCI Data Security Standard current and will provide evidence that the Certification of Compliance is current to County upon request.

12.5.   **Response to Legal Request for County Data**. If the County receives a Court Order, a Freedom of Information Act (FOIA) request, or other legal request to provide County Data held by Contractor, then Contractor shall provide County Data to the County, in a format directed by the County, within the time frame required by law.

12.6.   **Obligations upon Expiration, Termination or Cancellation of Contract.** At the County's sole discretion, upon expiration, termination, or cancellation of this Contract, Contractor shall return County Data in a mutually agreeable format in a prompt and orderly manner or provide for the secure disposal of County Data as directed by County.

§13.   **INFORMATION TECHNOLOGY STANDARDS.** If Contractor provides a technology application or requires the use of the Internet to access a Deliverable, the following sections apply:

13.1.   **County Standards**. If Contractor and Contractor Employees that will be given access to the County Network, Contractor and Contractor Employees shall comply with the County Electronic Communications and Use of Technology Policy.

13.2.   **Implementation of Security Measures**. Contractor shall implement and maintain appropriate administrative, technical, and organizational security measures to safeguard against unauthorized access to the County Network, County Data, and Contractor's network/system(s) used to access County Data.   Such measures shall be in accordance with security industry best practice and not less stringent than the measures Contractor applies to protect its own data of a similar kind. The County shall have the right to audit, inspect, and test Contractor's network and system security.

13.3.   **Security Reporting.** Contractor shall provide County with its SOC2 Type 2 report, which must be assessed by an independent auditor, or provide County with a completed County security questionnaire if Contractor does not have a SOC2 Type 2 report. Contractor shall provide County with Contractor's SOC2 Type 2 report or the completed County security questionnaire, on or prior to the

Effective Date of this Contract, and within five (5) Business Days of a written request by County during the duration of this Contract. County will not make more than one request per year for the Contractor's SOC2 Type 2 report or for the Contractor to provide County with a completed County security questionnaire, unless County has reasonable cause to do so. If Contractor has a SOC2 Type 2 report, Contractor shall keep its SOC2 Type 2 report up to date for the duration of this Contract.

§14. GENERAL TERMS AND CONDITIONS

14.1. **Access to County Property or Facilities.** As set forth in this Contract, Contractor has access to and the right to use County property and facilities necessary to perform this Contract. Unless otherwise provided in this Contract or Contractor receives prior written permission from the County's Director responsible for the department requiring access outside of Business Days, Contractor may only access and use County property and facilities for performance of this Contract on Business Days.

14.2. **Signs on County Property or Facilities.** Contractor shall not place any signs or advertisements on County property or facilities without the prior written permission of the County's Director of Facilities Management or successor, or designee.

14.3. **Use of County Property or Facilities.** While performing this Contract, Contractor shall keep County property or facilities and anything stored thereon in a clean, safe, sanitary, responsible, and healthful condition and shall keep the property and facilities in a manner that will not prevent or interfere with the County's performance of its functions.

14.4. **Removal of Contractor Personal Property.** At the expiration or termination of this Contract, Contractor shall leave County property or facilities in the same condition that Contractor found them and clean of all rubbish. Contractor shall remove all of its personal property within thirty (30) Days of expiration or termination of this Contract. If Contractor does not remove its personal property within the thirty (30) Day period, then the County may, at County's sole discretion, dispose of the personal property and bill Contractor for any costs associated with the removal and disposal or keep, have all rights to, and be the owner of the personal property.

14.5. **Damage to County Property or Facilities.** Contractor shall be responsible for any damage to any County property or a facility that is caused by Contractor or Contractor Employees. If damage occurs, the County shall make the necessary repairs and/or replacements or cause a third party to make the necessary repairs or replacements, provided, however, that Contractor shall reimburse the County for all costs associated with repairing and/or replacing the damaged property or facilities. Without limiting any of the County's other setoff rights in

this Contract, County has the right to set-off those costs and/or damages from any amounts due and owing Contractor.

14.6. **Damage to Contractor's Property.** Contractor shall be solely liable and responsible for any property loss or damage resulting from fire, theft, or other means to Contractor's personal property located, kept, or stored on or at County property or facilities during performance of this Contract.

14.7. **County's Right to Suspend Contract Performance.** Upon written notice, the County may require Contractor to suspend performance of this Contract if Contractor has failed to comply with any federal, state, or local laws or any requirements contained in this Contract. The right to suspend performance of this Contract is in addition to the County's right to terminate and/or cancel this Contract. The County shall incur no penalty, expense, or liability to Contractor if the County suspends performance of this Contract under this Section.

14.8. **Discrimination.** Contractor, and its subcontractors under this Contract, shall not discriminate against an employee or an applicant for employment in hiring, any terms and conditions of employment or matters related to employment regardless of race, color, religion, sex, sexual orientation, gender identity or expression, national origin, age, genetic information, height, weight, disability, veteran status, familial status, marital status or any other reason, that is unrelated to the person's ability to perform the duties of a particular job or position, in accordance with applicable federal and state laws.

14.9. **Conflict of Interest.** Pursuant to Public Act 317 and 318 of 1968, as amended (MCL 15.301, *et seq*. and MCL 15.321, *et seq*.), no contracts shall be entered into between the County and any County Agent. To avoid any real or perceived conflict of interest, Contractor shall disclose to the County the identity of all Contractor Employees and all Family Members of Contractor Employees who: a) are employed by the County on the date the Contract is executed; and b) become employed by the County during the term of the Contract. Contractor shall also disclose to the County the identity of all County Agents and all Family Members of County Agents who: a) are employed by Contractor on the date the Contract is executed; and b) become employed by Contractor during the term of the Contract. For the purposes of this section, "Family Member" means a person's spouse or spouse's sibling or child; a person's sibling or sibling's spouse or child; a person's child or child's spouse; or a person's parent or parent's spouse, and includes these relationships as created by adoption, marriage, or law.

14.10. **Access and Records.** Contractor will maintain accurate books and records in connection with performance of this Contract for thirty-six (36) months after the end of this Contract and Contractor shall provide the County with reasonable access to such books and records, upon request.

14.11.   **Audit.** The County or an independent auditor hired by the County may perform contract audits (in its sole discretion) and shall have the authority to access all pertinent records and data and to interview any Contractor Employee during the term of this Contract and for a period of three years after final payment. Contractor shall explain any audit findings, questioned costs, or other Contract compliance deficiencies to the County within thirty (30) Business Days of receiving the draft audit report. Contractor's written response shall include all necessary documents and information that refute the draft audit report and an action plan to resolve the audit findings. A copy of Contractor's response will be included in the final report. Failure by Contractor to respond in writing within thirty (30) Business Days shall be deemed acceptance of the draft audit report and will be noted in the final report.

14.12.   **Assignments/Delegations/Subcontracts.**

14.12.1. **Prior Written Consent Required.** Except by operation of law, neither Party may assign, delegate, or subcontract any of its duties, obligations, or rights under this Contract without the prior written consent of the other Party; provided, however, Contractor may assign, delegate, or subcontract this Contract to an affiliate or subsidiary as long as the affiliate or subsidiary is adequately capitalized and can provide adequate written assurances to the County that the affiliate or subsidiary can perform this Contract. The County may withhold consent, if the County determines that the assignment, delegation, or subcontract would impair performance of this Contract or the County's ability to recover damages under this Contract. Contractor shall also provide the County with adequate information to allow the County to make a determination regarding the assignment, delegation, or subcontract.

14.12.2. **Flow Down Clause Required.** Any assignment, delegation, or subcontract by Contractor must include a requirement that the assignee, delegee, or subcontractor will comply with the terms and conditions of this Contract. The assignment, delegation, or subcontract shall in no way diminish or impair performance of any term or condition of this Contract.

14.12.3. **Contractor Responsibility for Assigns/Delegates/Subcontractors.** If Contractor assigns, delegates, or subcontracts this Contract, in whole or in part, Contractor shall remain the sole point of contact regarding all matters under this Contract and shall remain liable for performance of this Contract. Contractor is solely responsible for the management of assignees, delegees, and subcontractors.

14.12.4. **Performance Required.** If an assignee, delegee, or subcontractor fails to perform as required under this Contract, Contractor shall contract with another entity for such performance. Any additional costs associated with securing another assignee, delegee, or subcontractor shall be the sole responsibility of Contractor.

14.13. **Non-Exclusive Contract.** This Contract is a non-exclusive agreement. No provision in this Contract limits or is intended to limit, in any way, Contractor's right to offer and provide its services to the general public, other business entities, municipalities, or governmental agencies during or after the term of this Contract. Similarly, the County may freely engage other persons to perform the same work that Contractor performs. Except as provided in this Contract, this Contract shall not be construed to guarantee Contractor or any Contractor Employee any fixed or certain number of Deliverables.

14.14. **No Third-Party Beneficiaries.** Except as expressly provided for the benefit of the Parties and the PPBs, this Contract does not and is not intended to create any obligation, duty, promise, contractual right or benefit, right to be indemnified, right to be subrogated to the Parties' right in this Contract, or any other right in favor of any other person or entity.

14.14.1. **Survival of Terms and Conditions.** The following terms and conditions shall survive and continue in full force beyond the termination or cancellation of this Contract (or any part thereof) until the terms and conditions are fully satisfied or expire by their nature: **Section 1**. Contract Definitions, **Section 2**. Contract Term and Renewal, **Section 5**. Scope of Deliverables and Financial/Payment Obligations, Section 6. County's G2G Marketplace Administration, **Section 7**. Contractor's Warranties and Assurances, **Section 8**. Liability, **Section 9**. Insurance and Bond Requirements, **Section 10**. Intellectual Property, **Section 11**. Confidential Information, **Section 13**. Information Technology Standards, and **Section 14**. General Terms and Conditions; and if incorporated into this Contract, Exhibit II: Business Associate Agreement (Health Insurance Portability and Accountability Act Requirements), Exhibit III: Requirements for Contractors with Access to County PII (Personally Identifiable Information), and Exhibit IV: Requirements for Contractors with Access to CJIS Data (Criminal Justice Information Security.

14.15. **Reservation of Rights.** This Contract does not, and is not intended to impair, divest, delegate, or contravene any constitutional, statutory, or other legal right, privilege, power, obligation, duty, or immunity of the County.

14.16. **Compliance with Laws.** Contractor shall comply with all federal, state, and local laws, statutes, ordinances, regulations, executive orders, insurance policy requirements, and requirements applicable to its activities under this Contract. Contractor shall comply with all applicable laws and regulations related to the import, export, re-export, transfer, shipping, sale, re-sale, and/or use of goods, services, information, data, and equipment involving or related to this Contract.

14.17. **Force Majeure.** Notwithstanding any other term or condition of this Contract, neither Party shall be liable for failure to perform contractual duties or obligations caused by events beyond

their reasonable control, including but not limited to: (a) acts of public enemies; (b) natural disasters; (c) terrorism; (d) war; (e) insurrection or riot; (f) natural disasters; (g) strikes, lockouts, work stoppages, or other labor difficulties; or (h) compliance with law. Reasonable notice shall be given to the affected Party of such event. Contractor is expected, through insurance or alternative temporary or emergency service arrangements, to continue its contractual duties or obligations if a reasonably anticipated, insurable business risk, such as business interruption or any insurable casualty or loss occurs.

14.18. **Notices.**

14.18.1. **Written Notice.** All notices required under this Contract shall be in writing. Notices shall be effective: (a) the next Business Day, if personally delivered; (b) the third Business Day, if sent by U.S. mail, postage prepaid, return receipt requested; (c) the next Business Day, if sent by a nationally recognized overnight express courier with a reliable tracking system; or (d) the next Business Day with a written response or receipt of confirmation, if sent by e-mail or fax.

14.18.2. **Notice to Contractor.** Unless otherwise specified, Notice to Contractor shall be addressed to the Contract Administrator listed on the first page of this Contract.

14.18.3. **Notice to County**. Unless otherwise specified herein, Notice to the County shall be addressed to Purchasing, the County Project Manager (if applicable), and the County Contract Administrator(s) listed on the first page of this Contract.

14.19. **Captions.** Section and subsection numbers, captions, and any index to sections or subsections contained in this Contract are intended for the convenience of the reader and are not intended to have any substantive meaning and shall not be interpreted to limit or modify any substantive provisions of this Contract. In this Contract, for any noun or pronoun, use of the singular or plural form, use of the nominative, possessive, or objective case, and any reference to gender (masculine, feminine, and neuter) shall mean the appropriate form, case, or gender as the context requires.

14.20. **Waiver.** Waiver of any term or condition under this Contract must be in writing and notice given pursuant to this Contract. No written waiver, in one or more instances, shall be deemed or construed as a continuing waiver of any term or condition of this Contract. No waiver by either Party shall subsequently affect its right to require strict performance of this Contract.

14.21. **Cumulative Remedies.** A Party's exercise of any remedy shall not preclude the exercise of any other remedies, all of which shall be cumulative. A Party shall have the right, in its sole discretion, to determine which remedies are to be exercised and in which order.

14.22. **Severability.** If a court of competent jurisdiction finds a term or condition of this Contract to be illegal or invalid, then the term or condition shall be deemed severed from this Contract.

All other terms or conditions shall remain in full force and effect. Notwithstanding the above, if Contractor's promise to indemnify or hold the County harmless is found illegal or invalid, Contractor shall contribute the maximum it is permitted to pay by law toward the payment and satisfaction of any Claims against the County.

14.23. **Dispute Resolution.** All disputes arising under or relating to the execution, interpretation, performance, or nonperformance of this Contract involving or affecting the Parties may first be submitted to the respective Project Manager (if applicable) and Contract Administrators for possible resolution.

14.24. **Governing Laws/Consent to Jurisdiction and Venue.** This Contract shall be governed, interpreted, and enforced by the laws of the State of Michigan, excluding Michigan's conflict of law principles. Except as otherwise required by law or court rule, any action brought to enforce, interpret, or decide any Claim arising under or related to this Contract shall be brought in the Sixth Judicial Circuit Court of the State of Michigan, the 50th District of the State of Michigan, or the United States District Court for the Eastern District of Michigan, Southern Division, as dictated by the applicable jurisdiction of the court. Except as otherwise required by law or court rule, venue is proper in the courts set forth above. The choice of forum set forth above shall not be deemed to preclude the enforcement of any judgment obtained in such forum or taking action under this Contract to enforce such judgment in any appropriate jurisdiction.

14.25. **Entire Contract.** This Contract represents the entire agreement and understanding between the Parties. This Contract supersedes all other prior oral or written understandings, communications, agreements, or contracts between the Parties. The language of this Contract shall be construed as a whole according to its fair meaning and not construed strictly for or against any Party.

EXHIBIT I

INSURANCE REQUIREMENTS

During this Contract, the Contractor shall provide and maintain, at Contractor's expense, all insurance as set forth and marked below, protecting the County against any Claims, as defined in this Contract. The insurance shall be written for not less than any minimum coverage herein specified. Limits of insurance required in no way limit the liability of the Contractor.

Primary Coverages

Commercial General Liability Occurrence Form including: (a) Premises and Operations; (b) Products and Completed Operations (including On and Off Premises Coverage); (c) Personal and Advertising Injury; (d) Broad Form Property Damage; (e) Broad Form Contractual including coverage for obligations assumed in this Contract;

$1,000,000 – Each Occurrence Limit
$1,000,000 – Personal & Advertising Injury
$2,000,000 – Products & Completed Operations Aggregate Limit
$2,000,000 – General Aggregate Limit
$ 100,000 – Damage to Premises Rented to You (formally known as Fire Legal Liability)

Workers' Compensation Insurance with limits statutorily required by any applicable Federal or State Law and Employers Liability insurance with limits of no less than $500,000 for each accident, $500,000 for a disease for each employee, and $500,000 for a disease policy limit. Contractor must comply with the following:

1. ☒ Be a Fully Insured or State approved self-insurer;
2. ☐ Sole Proprietors must submit a signed Sole Proprietor form; or
3. ☐ Exempt entities, Partnerships, LLC, etc., must submit a State of Michigan form WC-337 Certificate of Exemption.

Evidence of workers' compensation insurance is not necessary if neither Contractor nor any Contractor Employees come onsite to any County real property, land, premises, buildings, or other facilities in the performance of this Contract

Commercial Automobile Liability Insurance covering bodily injury or property damage arising out of the use of any owned, hired, or non-owned automobile with a combined single limit of $1,000,000 each accident. This requirement is waived if there are no company owned, hired or non-owned automobiles utilized in the performance of this Contract.

Commercial Umbrella/Excess Liability Insurance with minimum limits of $2,000,000 each occurrence. This coverage shall be in excess of the scheduled underlying General Liability, Automobile Liability, and Employer's Liability Insurance policies with exclusions that are not broader than those contained in the

underlying policies. This Umbrella/Excess requirement may be met by increasing the primary Commercial General Liability limits to meet the combined limit requirement.

Supplemental Coverages. The following supplemental coverages are required if selected (checked):

1. ☒ **Professional Liability/Errors & Omissions Insurance** (i.e., Consultants, Technology Vendors, Architects, Engineers, Real Estate Agents, Insurance Agents, Attorneys, etc.) with minimum limits of $1,000,000 per claim and $1,000,000 aggregate shall be required when the Contractor provides professional services that the County relies upon.

2. ☒ **Cyber Liability Insurance** with minimum limits of $1,000,000 per claim and $1,000,000 aggregate shall be required when the Contractor has access to County IT systems and/or stores County data electronically.

General Insurance Conditions

The aforementioned insurance shall be endorsed, as applicable, and shall contain the following terms, conditions, and/or endorsements. All certificates of insurance shall provide evidence of compliance with all required terms, conditions and/or endorsements.

1. All policies of insurance shall be on a primary, non-contributory basis with any other insurance or self-insurance carried by the County;

2. The insurance company(s) issuing the policy(s) shall have no recourse against the County for subrogation (policy endorsed written waiver), premiums, deductibles, or assessments under any form. All policies shall be endorsed to provide a written waiver of subrogation in favor of the County;

3. Any and all deductibles or self-insured retentions shall be assumed by and be at the sole risk of the Contractor;

4. Contractors shall be responsible for their own property insurance for all equipment and personal property used and/or stored on County property;

5. The Commercial General Liability and Commercial Automobile Liability policies along with any required supplemental coverages shall be endorsed to name the "County of Oakland" and it officers, directors, employees, appointees and commissioners as additional insured where permitted by law and policy form;

6. If the Contractor's insurance policy has higher limits than the minimum coverage requirements stated in this document the higher limits shall apply and in no way shall limit the overall liability assumed by the Contractor under contract.

7. The Contractor shall require its contractors or sub-contractors, not protected under the Contractor's insurance policies, to procure and maintain insurance with coverages, limits, provisions, and/or clauses equal to those required in this Contract;

8. Certificates of insurance must be provided no less than ten (10) Business Days prior to the County's execution of the Contract and must bear evidence of all required terms, conditions and endorsements; and provide thirty (30) days' written notice of cancellation/material change endorsement to the insurance coverages required by this Exhibit.

9. All insurance carriers must be licensed and approved to do business in the State of Michigan along with the Contractor's state of domicile and shall have and maintain a minimum A.M. Best's rating of A- unless otherwise approved by the County Risk Management Department.

EXHIBIT IX

SCOPE OF CONTRACTOR DELIVERABLES/FINANCIAL OBLIGATIONS

1. **INTRODUCTION**

   1.1. Contractor shall provide County with a pair of Pure Storage arrays, one in each data center. The Pure Storage-as-a-Service ("System") will provide enterprise class storage via their "Evergreen//One" service-model.

   1.2. Contractor shall:
   - **1.2.1.** Implement the System and provide the deliverables described herein.
   - **1.2.2.** Integrate the System with County's existing data center network infrastructure.
   - **1.2.3.** Provide onsite training.
   - **1.2.4.** Implement the System within 80 days after the Contract is executed, or immediately upon when product supply becomes available.

   1.3. In addition to and without limiting any of Contractor's obligations or responsibilities in the Contract, Contractor shall:
   - **1.3.1.** Be responsible for and ensure that Pure Storage, Inc. performs all the Deliverables in accordance with this Contract; and
   - **1.3.2.** Be liable and responsible for all Claims brought against the County, which are alleged to have been caused by the acts or omissions of Pure Storage, Inc. that concern or relate to the Deliverables.

2. **SERVICE FEATURES**

   2.1. The System provided by Contractor shall:
   - **2.1.1.** Provide the County with Evergreen//One Pure-as-a-Service as described in Appendix A: Evergreen//One Product Guide, Appendix C: Evergreen Storage Program Description, and Appendix H: Evergreen//One Included Services Description.
   - **2.1.2.** Provide the following committed capacities of the //Block Capacity tier in each of the County's two data centers:
     - **2.1.2.1.** Year 1: 550 TiB
     - **2.1.2.2.** Year 2: 550 TiB
     - **2.1.2.3.** Year 3: 550 TiB
     - **2.1.2.4.** Year 4: 450 TiB
     - **2.1.2.5.** Year 5: 450 TiB
   - **2.1.3.** Provide additional capacity within the storage system that may be used in accordance with the Evergreen//One program.

2.1.4.   Provide Non-Returnable Drives

   2.1.4.1.   The County will retain and destroy all failed storage drives upon failure and replacement, as described in Appendix I: Non-Return Solid State Drive Option

3. SYSTEM IMPLEMENTATION

3.1. Contractor shall use the steps described below to implement the System.

   3.1.1. Install storage equipment in each data center, connect to network, and validate functionality as described in Appendix D: Professional Services Guide and Appendix E: Pure's Host/SAN Best Practices.

3.2. The 5-year Service Term will begin on the date of implementation, upon connection of the deployed storage arrays to the managed Pure1 service.

4. PRICING

4.1. Service Costs

   4.1.1. Oakland County is purchasing Pure Storage "//Block Capacity" service

      4.1.1.1. The quantities in the below table are a Reserved Commitment as defined in the Pure Storage Agreement.

      4.1.1.2. Prices are at a 16% discount for $18.10/TiB/Month.

Cost Description	Cost
Implementation Costs	
Pure FlashArray™ Installation Service, in both data centers	$9,600.00
Annual Service Costs	
//Block Capacity Y1 (3-months free); 550 TiB Commitment, in both data centers	$189,222.00
//Block Capacity Y2 550 TiB Commitment, in both data centers	$238,920.00
//Block Capacity Y3 550 TiB Commitment, in both data centers	$238,920.00
//Block Capacity Y4 450 TiB Commitment, in both data centers	$195,480.00
//Block Capacity Y5 450 TiB Commitment, in both data centers	$195,480.00
Total 5 Year Costs	**$1,067,622**

4.2. Other Costs

4.2.1. Other costs are described in Appendix A: Evergreen//One Product Guide and governed by the terms in the Oakland County/Pure Agreement.

5. **PAYMENT**
   5.1. COUNTY SHALL PROVIDE PAYMENT TO CONTRACTOR FOR IMPLEMENTATION COSTS UPON RECEIPT OF INVOICE AFTER CONTRACT EXECUTION.

   5.2. COUNTY SHALL PROVIDE PAYMENT TO CONTRACTOR OR FOR ANNUAL SERVICE COSTS UPON RECEIPT OF INVOICE.

   5.3. COUNTY SHALL PROVIDE PAYMENT TO CONTRACTOR FOR OTHER SERVICE COSTS RELATED TO CONSUMPTION UPON RECEIPT OF INVOICE.

6. **ROLES AND RESPONSIBILITIES**
   6.1. ROLES AND RESPONSIBILITIES FOR EVERGREEN//ONE PURE-AS-A-SERVICE ARE DEFINED IN APPENDIX G: EVERGREEN//ONE RACI.

7. **SERVICE MANAGEMENT**
   7.1. Service Management will adhere to the descriptions in Appendix A: Evergreen//One Product Guide.
   7.2. Customer Support will be provided by Pure in accordance with Appendix B: Customer Support Guide.
   7.3. Upgrades to the system will adhere to the descriptions in Appendix F: Pure's Evergreen//One Upgrade Policy.

Appendix A: Evergreen//One Product Guide

Evergreen//One Product Guide

This Evergreen//One Product Guide (**"Product Guide"**) provides descriptions of available subscription types and the applicable service level agreements associated with all Evergreen//One subscriptions, based on the Environmental Requirements list below.

1. EVERGREEN//ONE SUBSCRIPTION TYPE AND EXPECTED PERFORMANCE.

Subscription Type	Expected Performance[1]
//Block Performance	8 MB/s per TiB (R/W Throughput) or 500 IOPS/TiB (16KiB I/O Size)
//Block Premium	16 MB/s per TiB (R/W Throughput) or 1000 IOPS/TiB (16KiB I/O Size)
//Block Ultra	32 MB/s per TiB (R/W Throughput) or 2000 IOPS/TiB (16KiB I/O Size)
//Block Capacity	1.6 MiB/s per TiB (R/W Throughput) or 100 IOPS/TiB (16KiB I/O Size)
//UFFO Performance	20 MB/s per TiB (R/W Throughput)
//UFFO Premium	50 MB/s per TiB (R/W Throughput)
//UFFO Ultra	130 MB/s per TiB (R/W Throughput)
//Cloud Block Store	Varies based on configuration selected by End User

[1] Based on the average reads/writes as measured in terms of MiB/TiB and IOPS/TiB (IOPS = average IO size divided by 16KiBk) of the applicable Reserve Commitment, or the Effective Used for all Evergreen One customers, average and reported over the prior month. The expected performance numbers for //UFFO subscriptions are based on a 70:30 R/W workload at full concurrency for NFSV3.

Environmental Requirements

FC or NVME for //Block and NFSv3 for //UFFO
End User workloads achieving MiB/TiB or IOPS/TiB but not necessarily both simultaneously
Host/SAN configurations must follow Pure's best practices
Workloads balanced across all Systems, with each at 95% utilization or higher as described in Pure1

2. SERVICE LEVEL AGREEMENTS

Uptime

Uptime[1]	Downtime/Month[3]	Service Credit of Monthly Invoice
99.9999%[2]	<2.0 secs	3%
99.999%	<26 secs	5%
99.99%	<4.4 mins	10%
99.95%	<21.9 mins	25%
99.9%	<43.8 mins	100%

[1] Does not apply to (a) any performance issues due to batch, maintenance, or data migration work; (b) issues arising out of any equipment, software, or any other technology neither owned nor supplied by Pure; or (c) issues arising outside of Pure's reasonable control.

[2] Uptime percentage is calculated across the Environment on a monthly basis, based on 24 hours a day, 7 days a week, calculated as follows:

Uptime Percentage = (Total Minutes in Calendar Month) - (Downtime Minutes) / Total Minutes in a Calendar Month

[3] Assuming a 30-day month

Buffer Capacity[1]

Service Credit for Buffer Capacity is calculated as 25% of the then-current Reserve Commitment or 100TiB.

Buffer Not Available/Days in Service Month[3]	Service Credit of Monthly Invoice[2]
≥1 day	3%
≥3 days	5%
≥5 days	10%
≥7 days	25%
≥14 days	100%[4]

[1] End User will receive 25% buffer capacity over the then-current Effective Used or Reserve Commitment (whichever is higher), up to 1PiB, in increments up to 100TiB at a time. End User shall provide its On-Demand forecast to Pure for provisioning additional capacity ahead of usage exceeding 80% of the Reserve Commitment.

[2] All Systems in the subscription must be utilized, and End User must cooperate with Pure in the deployment of buffer capacity.

[3] Assumes a fully completed month of service.

[4] Any Service Credits are prorated for the number of days that Buffer Capacity does not enable host or replicated write operations. For example, if Buffer Capacity does not enable host or replicated write operations for two (2) whole days, End User receives a 3% credit for that service month.

Performance[5]

Meets Expected Performance[1]	Not Met/Month[3]	Service Credit of Monthly Invoice
99.9999%[2]	<2.0 secs	3%
99.999%	<26 secs	5%
99.99%	<4.4 mins	10%
99.95%	<21.9 mins	25%
99.9%	<43.8 mins	100%[4]

[1] All Systems in the subscription must be fully utilized

[2] Calculated across Environment on a monthly basis, based on 24 hours a day, 7 days a week, calculated as follows: Availability = (Total Seconds in Calendar Month) - (Time in Seconds Performance Not met) / Total Seconds in a Calendar Month

[3] Assumes a 30-day month

[4] Any 100% Service Credits are prorated for the number of days that Performance is not met. For example, if Performance is 100% unavailable for two (2) whole days, End User receives a 100% credit for those two days in the month.

[5] UFFO Subscriptions initiated prior to June 8th, 2022, or delivered on the 15-blade chassis system will continue to be measured and deliver the performance agreements under which they were entered.

a.UFFO Ultra: 96 MiB/s per TiB for reads and 35 MiB/s per TiB for writes.

b.UFFO Premium: 43 MiB/s per TiB for reads and 15 MiB/s per TiB for writes.

Efficiency[1]

(Applicable to Evergreen//One Subscriptions purchased after Jan 4, 2023)[2]

Subscription Type	Watts[3]/TiB	Initial Minimum Reserve Commitment
//Block Capacity	2W / TiB	500 TiB
//Block Performance	3W / TiB	300 TiB
//Block Premium	4W / TiB	300 TiB
//Block Ultra	7W / TiB	300 TiB

[1] End User will experience the applicable power consumption per TiB on each System, per Subscription & Subscription Type, as set forth in this table. Subscription must commence with a minimum of 300TiB for Perf, Prem, or Ultra; and 500TiB Capacity.

[2] This Efficiency SLA also does not apply to (a) Pure hardware purchased or transferred over from the End User; or (b) customer-requested configurations to the Service Infrastructure.

[3] Watts are based on a daily average of actual power consumed over a completed service month as reported by Pure. For purposes of calculating efficiency, "TiB" means either the Reserve Commitment plus the 25% Buffer, or the Total Estimated Effective Used (Usable * PRE Ratio) capacity for the applicable Systems in the Subscription, whichever is greater. NOTE: Watts/TiB for counterpart PRE //Block Performance, Premium and Ultra SKUs are 2X the standard //Block offerings.

Average Watts/TiB in completed Service Month	Service Credit of Monthly Invoice[1]
≥1 day	3%
≥3 days	5%
≥5 days	10%
≥7 days	25%
≥14 days	100%

[1] Any Service Credits are prorated for the number of days that the SLA was not met, presuming monthly average Watts/TiB is greater than target SLA threshold. For example, if the monthly average of //Block Capacity was 3 Watts/TiB, Pure will determine the number of the days where the daily average is greater than 2 Watts/TiB and provide service credits for those days.br>

3. **SERVICE CREDIT REQUIREMENTS.** The commitments listed above are contingent upon the following: (a) End User submitting a Sev-1 ticket; (b) Pure determining "Pure System at Fault" in the Root Cause Analysis ("RCA") for the underlying cause of missing the commitment; (c) for any Performance or Efficiency commitments, the End User must demonstrate the performance was not met; (d) for any Uptime commitments, the applicable System was active and running for the 30 days preceding the outage; (e) host multipathing must be set up for best practices; and (f) the RCA must not find that End User was a cause, in whole or in part, to any miss of the applicable Service Level Commitments described above. Notwithstanding anything to the contrary in the Agreement, the maximum Service Credit that End User may earn for any single subscription shall not exceed 10% of the highest Reserve Commitment for any year during the applicable Service Term.

4. **APPLICATION OF SERVICE CREDITS.** Credits can only be applied: (a) if End User complies with Pure's Evergreen//One Upgrade Policy; (b) to invoices for Evergreen//One issued subsequent to when

the credit was earned, and (c) to the affected System. Credits shall not: (i) be applied to anything other than as described in this Agreement; (ii) combined with any other credits earned, incentives, or discounts offered by Pure; (iii) be issued as cash or a cash rebate in lieu of a credit, even if the subscription is not being renewed; and (iv) be valid after the expiration of termination of the subscription. All consumption and downtime data applicable to the final quarter of the Subscription is consolidated, and either Pure or the applicable reseller issues a final invoice that applies all credits earned through the expiration or termination of the applicable Service Term.

5. **ZERO PLANNED DOWNTIME COMMITMENT.** All Subscriptions are delivered with zero Planned Downtime and therefore End User may be entitled to a Downtime Credit equal to 100% of the monthly charges on any System that experiences Planned Downtime.

6. **INCLUDED WITH ALL SUBSCRIPTIONS.** All Evergreen//One subscriptions include the Evergreen//One RACI and the Evergreen//One Included Services Description.

7. **GENERAL TERMS**. This Product Guide supplements the attached Pure End User Agreement (or other written agreement covering the same subject matter executed by Pure) for the applicable subscription purchased by End User. Capitalized terms not specifically defined in these Terms have the same meaning as in the End User Agreement.

Appendix B: Customer Support Guide

PURE   STORAGE

Customer Support Guide

2022

Version 7.0.1

Contents

Introduction

This guide briefly describes the technical support and maintenance services that Pure Storage ® provides its customers.

Contact Pure Storage Support

- Web   pure1.purestorage.com/support

- Phone (Us)   +1 (866) 244-7121 or +1 (650) 729-4088

- Phone (International)   support.purestorage.com/?cid=ContactUs

Customer may contact Pure Storage Support at support@purestorage.com to request login credentials.

Support Services

We offer support for Pure Storage FlashArray tm and FlashBlade ® systems and their environments over the phone, by email, and through our web portal. Customers can get help with the following:

Services
Usage Assistance with day-to-day administration and implementation of Pure Storage best practices
Diagnosis Analysis of Pure Storage product error messages, identification, and isolation of root causes, and tracking of existing problems
Resolution Solutions for problems, but also methods of avoiding trouble without compromising system performance or reliability
Monitoring Pure Storage Support proactively monitors systems that are under "Premium" or "Advanced" maintenance plans that have Pure1 ® enabled

For information on Product Supportability, please see our Pure Storage End-of-Product Lifecycle Overview (https://support.purestorage.com/?cid=Product_Life_Cycle_Overview).

Support Packages

The following table outlines our maintenance and support packages:

	Basic	Next-Business Day	Four-Hour
Hotline	365 x 24 x 7	365 x 24 x 7	365 x 24 x 7
Response Time	15 minutes	15 Minutes	15 minutes
Pure1	Yes	Yes	Yes
Online Training	Yes	Yes	Yes
Proactive Monitoring	No	Yes	Yes
SLA for Hardware Replacement[1]	Same-day shipping: delivery varies[2]	Next-business-day delivery	Four-hour delivery
Included Controller Upgrades	Evergreen//Forever	Evergreen//Forever	Evergreen//Forever
Remote Software Upgrade Included	Defect fixes only	Unlimited	Unlimited
Optional DSE	No	No	No

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[1] Applies to time after diagnoses and dispatch; not after the ticket is opened.

[2] With Same-day Shipping there is no time-delivery commitment, the order is placed on the same day that the part has been diagnosed as faulty and replacement requested. The part is shipped from regional depots and may be subject to international transportation and customs lead times. The end user should be made aware that they will need to act as importer of record internationally

Evergreen Storage

The following is a breakdown of the different Evergreen TM subscriptions:

		Evergreen//Forever™ Subscription	Evergreen//Foundation™ Subscription	Evergreen//Flex™
Software Subscription	All-Inclusive Array Software	✓	✓	✓
	Future Array Software Features	✓	✓	✓
	Portworx CSI for FA & FB	✓	✓	
Hardware Subscription	Evergreen Architecture	✓	✓	✓
	Ever Modern Controllers*	✓		✓
	Ever Agile Controllers**	Trade-in Credit	No hardware subscription features	✓
	Capacity Consolidation**	Full trade-in Credit /w 4X Purchase		✓
	Forever Component Replacement	✓		✓
World-Class Customer Experience	Predictive Analytics & Services	✓	✓	✓
	Instant L2 Support Access	✓	✓	✓
	Support Managed Upgrades	✓	✓	✓
	Mobile/SaaS-Based Monitoring	✓	✓	✓
	Right Size & 30-Day Guarantees	✓	✓	✓
	Flat & Fair Renewals	✓	✓	N/A***

*See Evergreen Storage program terms **Requires purchase of qualifying capacity ***Evergreen//Flex subscription is based on capacity used

Portworx Support Services

Customers may contact Pure Storage Support for assistance with their Portworx tm product via the above mentioned methods in CONTACT PURE STORAGE SUPPORT.

Portworx Support Levels

Severity 1	The classification used when the Software fails to function causing the system on which it is installed to go down or "crash" or data from Portworx volumes are unavailable. Portworx shall initially respond to the customer within one (1) hour.
Severity 2	The classification used when there is an error that does not render the system on which it is installed inoperable, but which materially interferes with the Software's ability to perform. Portworx shall initially respond to the customer within six (6) hours.
Severity 3	The classification used when there is an issue that causes or results in substandard or erratic performance. Portworx shall initially respond to the customer within one (1) day.
Severity 4	The classification used when there is an issue that produces an inconvenient situation or when the customer requests an enhancement. Portworx shall initially respond to the customer within five (5) business days.

Technical Support Services

Pure Storage's technical support services are proactive, reaching out to customers when alerts in our Pure1 monitoring system brings attention to a problem, (see "Support Technologies," below).

Customers may also discover issues and contact us for help, through telephone or email.

Whether the issue comes to our attention through an alert or a customer's contact, as soon our team

becomes aware of a serious issue, we create a case, start the clock, and immediately get to work. Throughout the support process, we notify customers according to the severity level of the issue they face, (see "Severity Levels" on page 8).

When a problem is brought to Pure Storage Support's attention through a Pure1 alert, we already know a lot about what's happening, because the alert includes a description of the problem, the time it began, and how critical it may become. In a case like this, the Technical Support Engineer (TSE)

evaluates the alert to determine how to respond. If appropriate, they promptly email the customer's

designated contact person, filling them in on the situation.

When a customer brings the issue to Pure Storage Support's attention over the phone, a Customer Support Specialist (CSS) fields the call, performs basic analysis, and creates a case in our management and tracking system. The CSS then puts the case in the hands of a qualified TSE who works with the customer to gather information such as system logs and to analyze the problem in depth. If the customer request arrives through email, the TSE usually responds to that correspondence first but may follow up later by phone. In either scenario, to better diagnose the problem, the TSE may ask for a video conference and to connect to the device through our secure Remote Assist, (RA)

technology, (see "Support Technologies," below).

While the TSE will likely produce a resolution that fits with both the customer's insights and the evidence at hand, occasionally the case may need to be escalated, especially when the problem has a high level of severity. At that point, team members with higher levels of expertise or specialization join the effort. The original TSE, however, remains as the point of contact for the customer.

In addition to contacting customers when problems arise, Pure Storage Support also reaches out proactively when there is a need to upgrade a particular version of Purity software, as when a serious issue is discovered with a version that a customer is running. When setting up an upgrade or lending assistance with any other activity, such as configuring a new feature, we schedule a time that is both convenient and efficient.

While customers are notified of the progress of cases throughout an investigation or any other service, after the problem is resolved, customers confirm that they are completely satisfied with the issue's resolution before we close the case. We then ask them to fill out a brief survey where they may offer feedback.

Support Technologies

Pure operating environments have several built-in features that allow for quick, effective troubleshooting: Pure1 and Remote Assist. These tools enable our technicians to anticipate issues and work with problems often before they arise.

Pure1 is an essential part of Pure Storage's overall strategies that allows the technical support team to monitor every connected device and then proactively identify potential problems. It operates through a secure link where logs are transmitted every 30 seconds to a secure server, enabling detection of performance issues and error-rate trends. When a problem is discovered, an alert immediately reports the issue so that action can be taken quickly. Records of previous alerts and other diagnostic operations provide a history off significant events to inform the troubleshooting effort.

While Pure1 provides preliminary diagnostic information, in many cases, the most efficient way to service a Pure Storage product is by the direct intervention of a Technical Support Engineer (TSE). At that point, the operating environment's Remote Assist (RA) feature enables the TSE to communicate directly with the device through a secure link. Typically, RA sessions also include simultaneous video or phone conferences. Once begun, an RA session runs in the background of the server's operating environment until it is terminated by the customer, the TSE, or by automatically timing out.

To ensure security, connection to Pure1 only transmits diagnostic data. It never accesses any customer data. Only a customer's local administrator can open a Remote Assist session. Further, only one RA session can be active at any time, though many TSEs may be active on that one session.

A closer look at motitoring systems, Alerts and Pure1

The Pure1 system constantly monitors Pure FlashArrays and FlashBlades that are working under Premium or Advanced maintenance plans and that have Pure1® Cloud enabled. The system creates alerts when individual processes or components may need attention. Depending on the alert, the customer, Pure Storage Support, or both are immediately informed.

Pure Storage Support monitors all alerts that indicate:

- A Products Failure to function

- Data loss or access issue

- Product performance degradation

- Visible changes in state on the UI or CLI

Specific features or processes that may cause alerts:

- Visible changes in state on the UI or CLI

- SSD loss or lack of space

- NVRAM loss

- Controller or component fault

- PSU fault

- Temperature or fan fault

- SAS Cabling fault

- Path to drive loss (SAS interposer)

- Throttling start and stop alerts

- Capacity limit alert

- Array startup

Find a full list of alerts here:

- FlashArray https://support.purestorage.com/?cid=PurityFA_Alerts

- FlashBlade https://support.purestorage.com/?cid=PurityFB_Alerts

When alerted of a problem, Pure Storage Support starts analyzing the nature of the issue immediately, using the diagnostic information sent with the alert.

With all critical alerts, after a TSE has completed an initial analysis, Pure Storage Support contacts you regardless of the time of day or the day of the year, (unless specifically instructed not to do so by a no-contact order that was previously put in place by the customer).

Note: Because time may be spent on analysis after the initial alert is sent, the TSE's initial contact may

be briefly delayed. Additionally, for non-critical alerts, we only contact customers as appropriate

(usually during regular hours). For example, if we determine that a failover was "by design" and had no

impact on I/O being served, we may follow up during regular business hours.

Prerequisites Required for Alerts

The customer must have Pure1 enabled on all Pure servers, whether FlashArrays or FlashBlades. Those sites that are not connected are considered "dark" sites. (See "Advice for Unconnected 'Dark' Sites," below).

All of the services described above occur 24 hours per day, seven days per week, and 365 days per year. For all critical alerts, Pure Storage Support will reach out to customers through their designated representatives. For that reason, we strongly recommend that customers provide an email alias and phone (or pager) number to alert the entire team that is in charge of the Pure server equipment. Doing so ensures that the alerts from Pure Storage Support can reach the correct individuals without delay.

Unconnected "Dark" Sites

Some customers have strict security requirements that do not allow information such as logs to leave their site for the Pure1. Our support methodology is based on being informed about the status of customer's servers when a customer elects not to use Pure1, they limit our ability to proactively resolve problems. Consequently, Pure Storage Support must rely on the customer's administrators to take a much more active role both in monitoring the equipment and, when problems arise, take a more active role in basic troubleshooting. To that end, Pure Storage offers a training course, written

materials, and special tools that are targeted for administrators at unconnected, "dark" sites. We

strongly recommend having at least two Pure-certified administrators on staff at each of these sites.

For more information on the assistance offered to dark sites, see the FlashArray Management Training Course information: (https://support.purestorage.com/FlashArray/Getting_Started_with_FlashArray/FlashArray_Managemen t_Training_Course). This certification course includes both video and hands-on training, plus a complete manual detailing methods that are not dependent on electronic connection to Pure Storage or any other site.

Pure Storage Support Portal

Pure Storage operates a state-of-the-art customer support portal at https://support.purestorage.com. The portal supports browsing from desktop, tablet, or smartphone with single sign-on between all sections of the site. If you are an existing customer, an account should have been created for you by your account team. If you have any questions or need assistance, email community@purestorage.com. The support portal provides access to the following:

Portal	Description
Manage	Easily monitor and manage your Pure Storage devices from anywhere.
Cases	Open, update, and view your support tickets with Pure Storage Support.
Knowledge	Access release notes, user guides, installation guides, advice on best practices, troubleshooting, and more.
Community	Access peer-to-peer discussions with other members of the Pure Storage Community. Ask questions, share tips and tricks, and communicate with other customers.

Support Contacts

Designated support contacts are the only people from customer sites who can speak to Pure Storage Support technicians on behalf of their companies. Implemented for the customer's security, this policy ensures that all information provided by our TSEs is received and implemented by the appropriate

personnel within the customer's organization. Customers need to designate all support contacts

before they attempt to open their first case. Different types of customer contacts follow:

Callers	Description
Authorized Callers	A customer can designate up to five individuals as authorized callers for each site. Only these designated contacts can call and receive assistance from Pure Storage Support. Customers may request portal accounts for these individuals through email to Pure Storage Support.
Pure1 Admin	The Pure1 Admin is the person at the customer's site who is authorized to provide support for a Pure FlashArray or FlashBlade. As the customer's resident Pure Storage expert, the Pure1 Admin is responsible for the administration of contacts and for assisting users. Knowledgeable about a wide range of product issues, this person determines whether a particular problem can be solved locally or needs to be referred to Pure Storage Support.

| Backup Contacts | Backup contacts should be located at the same site as the Pure1 Admin and be able to perform all the necessary duties on the FlashArray or FlashBlade, including contacting Pure Storage Support and opening RA sessions when required. |

Severity Levels

Pure Storage Support will assign a severity level to each new case by using a formal ranking system that is based on the business impact of the problem. If the severity is raised, the new severity level continues through the life of the case. When tracking a case on the Pure1 Portal, this value can be as the "Case Severity."

Severity	Definition	Initial Response	Update Frequency
Severity 1 Emergency	Critical impact to a critical business system which is preventing business functions from operating, resulting in loss of productivity or financial impact, including data loss or data corruption.	15 Minutes	Continuous updates
Severity 2 Major	Major impact on a critical business system with reduced or degraded functionality impacting productivity or financial loss.	30 minutes	Updates daily or as agreed
Severity 3 Minor	Minor impact or degradation of service to business system impacting non-essential functions with minimal or no impact to the business.	1 Business Hour	Every other business day or as agreed
Severity 4 Informational	Information inquiries including a request for documentation, questions on product functionality, or configuration.	2 Business Hours	Updates as agreed

Opening a New Case

Open a New Case Via the Web Portal

When possible, Pure Storage recommends opening new cases via the support portal at https://pure1.purestorage.com/support.

Open a New Case Via Phone

To open a case via phone, visit the following portal for available phone numbers:
https://support.purestorage.com/Pure_Storage_Technical_Services/Technical_Services_Information/Contact_Us

Hardware Replacements

Pure Storage Support provides quick replacement of any malfunctioning Pure hardware. When we determine that a hardware component needs to be replaced, the TSE initiates the shipping of the replacement part and, if required, dispatches a Field Technician to perform the part replacement.

If a hardware issue arises during installation, a new shipment for the entire asset may be procured from the nearest available factory on the following business day, with expedited delivery.

If a field technician is required for hardware replacement, customers need to provide information on the location of the device, including the address of the datacenter and any pertinent information within it, such as grid coordinates. The customers also need to provide specifics for site security that may be required to effect repair of the device.

After replacement of a part, the replaced hardware component must be shipped back to Pure Storage by the customer, using the packaging in which the replacement part was delivered. To ensure correct delivery, Pure Storage will provide a pre-paid return label to affix to the packaging via email. For an additional charge, customers may choose to retain drives that were installed in the replaced products.

When purchasing support strategies for some countries where Pure Storage does not have a parts depot, the Pure1 Basic Support plan may be an available option. With this plan, Pure Storage ships parts from a fulfillment center on the same day, though the company may not be able to guarantee a specific delivery time.

Business Critical Services (BCS) Program

The BCS service is a billable add-on option that is available for the Premium maintenance plan during periods of one, three, or twelve months. The program provides two key personnel for each of its customers.

- A Support Account Manager (SAM) who provides account management services

- A Designated Support Engineer (DSE) who provides technical support services

The SAM becomes familiar with the customer's technical account and administrative needs and acts as the primary conduit for communications. The DSE remotely services the customer's FlashArrays and FlashBlades, as well as providing expertise on the customer's environments, configurations, and procedures.

BCS Program Highlights

The following highlights show the value of the BCS Program:

- Single point of contact for the management or technical support cases

- An intimate understanding of the customer's environment

- Remote assistance for the administration of the Pure FlashArray or FlashBlade

- Proactive support, maintenance, and troubleshooting assistance

- Knowledge transfer and technical assistance with customer's staff

BCS Program Features and Benefits

Each customer has direct access to an experienced support engineer who understands the customer's IT environment as it relates to the Pure FlashArray or FlashBlade.

The SAM is the central point of contact for support management activities, including:

- Senior designated resource providing a communication conduit into Pure Storage Support.

- Knowledge of customer environments, requirements, planning, and personnel.

- Defines business-critical success criteria prior to Implementation and then reports progress.

- Oversees the installation of Pure technology by acting as a liaison to support.

- Engages technical expertise (Implementation, Integration, solution architects, technical training, etc.), as required.

The DSE helps the customer in the following ways:

- Participates in a weekly status call with the customer and summarizes outstanding issues along with the health and performance of the FlashArrays and FlashBlades.

- Performs weekly proactive scans for known pathologies on the customer's FlashArrays and presents any findings, sharing a plan of action for any issues found.

- Troubleshoots and resolves problems when they are found.

Reinstatement and Renewals

If we suspend support services for any period of time due to non-renewal or a violation of the Support Agreement, you may reinstate services by submitting the full amount of any lapsed payments, outstanding fees, and reinstatement penalties. If within the calendar quarter, we may waive reinstatement fees and penalties. Our Renewals team will guide you through the process.

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800.379.PURE

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Appendix C: Evergreen Storage Program Description

EVERGREEN™ PROGRAM DESCRIPTION

This Evergreen™ Program Description applies to the provision of an innovation and support subscription for Pure's Products described below ("**Evergreen Subscription(s)**") as purchased by the End User from Pure ("**Pure**") or a Pure authorized reseller. This Evergreen Program Description applies to both Evergreen//Forever and Evergreen//Foundation Subscriptions, except where specifically set forth herein. For purposes of this Evergreen Program Description, "Products" applies to only Pure's FlashArray and FlashBlade Products.

LOVE YOUR STORAGE GUARANTEE

The first Product purchased by End User comes with a 30-day "money back" guarantee, under which End User can receive a full refund for the Product and applicable Evergreen Subscriptions, provided (i) End User must have performed a good-faith installation of the Product and enabled the Pure1® phone home feature, and (ii) End User must notify Pure within 30 days of receipt of the Product to elect for a refund, and must return the Product within 10 days of such notice, in like new condition (other than normal wear and tear). Pure will pay the shipping costs for returns in accordance with Pure's reasonable instructions. Refunds will be processed within 30 days following Pure's receipt of the returned Product. Pure reserves the right to charge reasonable refurbishing fees for damage to the Products while under End User's control. If End User has conducted an evaluation of the Product, then End User has had an opportunity to evaluate the Product and is not eligible for this guarantee. This guarantee applies to Pure's FlashArray and FlashBlade Products.

ALL ARRAY SOFTWARE INCLUDED

When End User purchases a Product, software functionality and features in the applicable array operating environment for FlashArray and FlashBlade, such as replication, clones, snapshots, and ActiveCluster synchronous replication, are licensed at no additional charge. A continuous, active Evergreen Subscription for a Product provides access to new software functionality and features in the applicable array operating environment when and if released by Pure. Please see Product documentation for details. This applies to Pure's FlashArray and FlashBlade Products. Future products or services may be licensed or sold separately.

RIGHT-SIZE GUARANTEE

Pure offers an effective capacity guarantee to Pure End Users that purchase the Product, based on the workloads specified by that End User ("**The Right-Size Guarantee**"). The Right-Size Guarantee is a separate, optional agreement customized to End User's specific capacity needs and workload(s). The guarantee lasts for twelve months and applies only once signed by Pure and End User. End User should ask their account representative for more details. The Right-Size Guarantee applies to Pure FlashArray //X and //XL Products.

COMPONENT REPLACEMENT

The Products are designed to be evergreen, whereby key components can be modularly replaced and upgraded to next generation Products over time. A continuous, active Evergreen Subscription keeps the then-current Product performing substantially in accordance with the Product documentation, including protecting from failures due to flash media wear and reducing the impact of individual component end-of-life events. Please see Product documentation for details. Component Replacement applies to

Pure's FlashArray and FlashBlade Products. Unless the End User has purchased a Non-Return option, in the event the End User does not return the part, the End User will be charged the full list price of that part. This also includes failed parts replaced by spares that the End User has purchased.

For an Evergreen//Foundation Subscription only, if a component has reached end of support, replacement of that component (at End User expense) may be required before subscription renewal.

FLAT AND FAIR

The rate Pure charges an authorized reseller for any renewal of the Initial Evergreen Subscription purchased by the End User (the **"Renewal Rate"**) remains flat to the rate offered to the authorized reseller at the time of the Initial Evergreen Subscription, provided that the renewal subscription including maintenance and support remains generally available for the applicable Product at the time of renewal. The Renewal Rate will be determined by applying the same Evergreen Subscription term, service level, and applicable pre-renewal in-rack configuration for the applicable Product and will not include any one-time promotional discounts or deals made available at the time of the initial purchase. Renewal Rates will be in U.S. Dollars. In the event of a severe inflation event, defined as annual inflation in excess of seven percent 7% (as measured by the Producer Price Index), the parties will negotiate, in good faith, reasonable adjustments to the Renewal Rate in an amount not to exceed the inflation over the period since the last renewal. This Subscription imposes no obligation to renew Evergreen Subscriptions for a Product. Flat and fair applies to Pure's FlashArray and FlashBlade Products.

CAPACITY CONSOLIDATION

Evergreen//Forever: If End User purchases a qualifying capacity expansion for a FlashArray or FlashBlade//S Product, End User may trade-in and consolidate a portion of existing installed capacity into the new capacity expansion ("Capacity Consolidation"). Pure will provide such End User a trade-in credit for storage already owned by the End User, up to a 25% credit of the new capacity expansion and up to 12.5% credit of the Evergreen//Forever Subscription for such FlashArray or FlashBlade//S Product. End User must return the old capacity to Pure within 45 days of receipt of the new capacity expansion. Please contact Pure's authorized resellers for specific pricing for Capacity Consolidation purchases.

Evergreen//Foundation: If End User purchases a qualifying blade expansion for a qualifying FlashBlade Product, End User may trade-in and consolidate a portion of existing installed blades into the new capacity expansion. Pure will provide such End User a trade-in credit for blades already owned by the End User, up to a 25% credit of the new capacity expansion and up to 12.5% credit of the Evergreen//Foundation Subscription for such FlashBlade Product. End User must return the old blades to Pure within 45 days of receipt of the new blades. Please contact Pure's authorized resellers for specific pricing for Capacity Consolidation purchases. Capacity Consolidation under a Evergreen//Foundation subscription applies to Pure FlashBlade Products, excluding FlashBlade//S.

EVERGREEN FOREVER (Evergreen//Forever Only)

A continuous, active Evergreen//Forever Subscription keeps the then-current Product performing substantially in accordance with the Product documentation, including protecting from failures due to flash media wear and reducing the impact of individual component end-of-life events.

EVER MODERN (Evergreen//Forever Only)

If End User purchases a Pure-branded Evergreen//Forever Subscription for a Product ("**Forever Subscription**"), and maintains the Forever Subscription for the entire Product for three consecutive years from the initial Product purchase, then End User is eligible to receive upgraded controllers (for FlashArray products) or blades (for FlashBlade products) for each additional three years of Forever Subscription that End User purchases for the applicable Product thereafter ("**Ever Modern**"). Pure will ship the then-current upgraded controllers or blades for a particular Product within the same Product family, as designated by Pure, after the start of the applicable paid three-year renewal period. As an example, an End User running a 3-year old FlashArray with //M20 controllers may receive FlashArray //X20 controllers. End User must take receipt of the upgraded controllers or blades within 90 days from Pure's notice that an upgrade is available (via electronic means to End User's designated contact), and must return the existing controllers or blades to Pure within 45 days of receipt of the upgraded controllers. End User may receive upgraded controllers or blades no more than once every three years with respect to a given Product. A mid-term upgrade of controllers or blades under any special offers, promotions, or programs resets the three-year clock for purposes of Ever Modern. Purchases of "Evergreen//Foundation" or other non-eligible Evergreen Subscriptions do not qualify for Ever Modern. Ever Modern applies to Pure FlashArray Products.

EVER AGILE (Evergreen//Forever Only)

Pure may offer Evergreen//Forever subscribers, Ever Agile bundles under which an End User purchasing a qualifying capacity expansion for a Product may receive a trade-in credit for existing controllers or blades to apply towards new, upgraded controllers or blades (and, if applicable,

additional components associated with the SKU) ("**Ever Agile**"). End User must return the existing controllers or blades (and such additional components, if applicable) to Pure within 45 days of receipt of the upgraded controllers or blades. Ever Agile bundles may not be combined with other special offers, promotions, or programs, unless expressly stated in such special offers, promotions, or programs. Controller or blade upgrades under Ever Agile reset the three-year clock for purposes of Ever Modern. End User is then eligible to receive upgraded controllers under Ever Modern when their controllers are three years old AND they have met the Evergreen//Forever Subscription purchase requirements outlined in the "Ever Modern" section above. Please contact Pure's authorized resellers for specific pricing for Ever Agile bundles.

GENERAL TERMS

This Subscription supplements the attached Terms (or other written agreement covering the same subject matter executed by Pure) and the attached [Pure Customer Support Guide](#) for the applicable Products and Evergreen Subscriptions purchased by End User.. For purposes of Ever Modern, for purchases made prior to such updates, Pure will honor the terms in effect for the applicable Product until the later of: (i) the date End User next receives upgraded controllers under Ever Modern, or (ii) the expiration of the then-current Evergreen Subscription term. Pure may end the Subscription with respect to future Product purchases at any time. End User is responsible for shipping charges and applicable taxes. Professional installation is (a) available for an additional charge from Pure or its authorized resellers, and (b) may be required to ensure Pure's ability to properly perform its maintenance and support obligations. Professional installation to be delivered by Pure will expire within 90 days of the ship date if not utilized by End User, except as otherwise agreed by Pure in writing. "Forever Flash" has been upgraded and replaced with "Evergreen

Subscription." Evergreen//Forever Subscription replaces "Gold" Evergreen Subscription and Forever Flash (FF) support contracts; and Evergreen//Foundation replaces "Silver" Evergreen Subscription and Non-FF support contracts. Product and components returned under this Subscription become the property of Pure. The Subscription is subject to [Pure's Privacy Statement](#) and constitutes an integral part of the Subscription. These Subscription terms apply to Pure FlashArray and FlashBlade Products.

FEAR, UNCERTAINTY AND DOUBT DISCLAIMER

Be warned that vendors offering competing products may offer their advice on Pure's terms or documentation. Pure's advice: Take their biased views with a grain of salt. Come take a reference call from a Pure End User and learn how Pure is changing storage forever. See more at [www.purestorage.com.](http://www.purestorage.com)

Last Updated February 03, 2023

Appendix D: Professional Services Guide

Excerpt from https://www.purestorage.com/content/dam/pdf/en/solution-briefs/sb-professional-services-service-briefs.pdf

Pure FlashArray™ Installation Service

Work with Pure's Services for a simple install.

Highlights

Comprehensive installation and configuration

Proactive 24x7 CloudAssist support

Pure1® continuous monitoring and assistance

Flexibility

Implement according to your schedule

Outcomes

Fully integrated flash storage solution

Knowledge transfer for rapid adoption and operation

Pure1 support activated and monitoring

Pure Storage® FlashArray is the first all-flash, 100% NVMe shared accelerated storage designed for mainstream enterprise deployment. The Pure Services Implementation and Integration Team can plan and execute a rapid deployment of your new FlashArray system.

THE END USER EXPERIENCE

Pure's Services exist to enable you to realize the value of your IT investments. As an integral part of the Pure Customer Experience (CX) team, we engage with organizations to evaluate, activate, and innovate their IT solutions.

The FlashArray Installation Service is designed for organizations that want to quickly activate the full potential of FlashArray. Our teams use a strict methodology to deploy and configure the Pure FlashArray series. Our approach can accelerate time to value and ensure that your environment is fully prepared.

FLASHARRAY INSTALLATION SERVICE WORK PRODUCTS

- **Pre-implementation planning:** Our Services team will conduct a discovery session to review your environment, confirm configuration details, and schedule the install.
- **Hardware installation:** We will unpack, rack, cable, and power up your new array.

  Purity initialization: Once installed, our team initializes the Purity operating system and configures FlashArray according to your requirements.

- **Connectivity verification:** We will connect to the your SAN infrastructure and validate connectivity.
- **Knowledge transfer:** We will walk you through the GUI, providing an operational overview of the FlashArray and answers any questions you may have regarding the installation.

FlashArray Installation Delivery Phases

Stage	Owner	Task	Delivery Method
Pre-planning	Pure, End User, Pure authorized reseller **(if** applicable)	Send installation checklist Gather pre-install information Schedule site survey, if required	Teleconference, email, physical site survey
Planning and document completion	Pure, End User, Pure authorized reseller (if applicable)	Review completed pre-install document Review site survey information Formally schedule physical install	Teleconference, email
Installation	Pure, End User, Pure authorized reseller (if applicable)	Rack and power up the hardware Validate appropriate level of code is on the FlashArray Configure primary and secondary controllers via the Purity installation script.	End User site, data center
Post-installation	Pure, End User, Pure authorized reseller **(if** applicable)	Execute post-install health checks Provide knowledge transfer with 10-20 minute walk through of FlashArray GUI to demonstrate basic tasks including: • Create Host and Host Groups • Create Volumes • Connect the Host to the volumes • Open a Remote Assist Session • View Host Connections and show balancing (if hosts are present)	End User site, data center

Scoping Parameters

The installation is an on-site activity.

- You shall provision sufficient rack space and power (PDU) for installation.

- You shall provide management, replication, iSCSI and/or FC connections to the array.

- You shall configure the SAN (iSCSI/FC) and management network before the install begins.

- You shall ensure appropriate cabling is available.

- This Service must be consumed within 12 months from the order being accepted by Pure, at which point it shall expire. Upon expiration, no refunds of prepaid Services fees will be provided.

End User Responsibilities

You shall provide the Pure Services Coordinator with the following information and Work Product before engaging any Pure technical resource:

- A complete Pure Storage Site Readiness and Pre-Installation Site Checklist

- Rack space and power (PDU) for installation

- A fully configure the SAN (iSCSI/FC) and management network and connectivity cables from the SAN and management network to the rack location of array install

Out of Scope

Anything not listed and detailed in the Work Product section of this document is out of scope for Pure.

About Pure's Services

Whether you are planning your next-generation storage system, need specialized know-how for a major storage deployment, or want to optimize the investment in your digital transformation, Pure's Services and our Pure authorized resellers have the expertise to assist. Discover how your IT environment can achieve the outcomes that matter most to your business. Contact your local Pure sales representative or visit www.purestorage.com.

All Pure Services are subject to the terms of the Professional Services Addendum which forms part of and supplements the Pure End User Agreement (or other written agreement covering the same subject matter executed by Pure).

Pure Storage, Inc. 650 Castro Street. #400, Mountain View, CA 94041

Appendix E: Pure's Host/SAN Best Practices

SAN Guidelines for Maximizing Pure Performance

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For the latest information, please visit

http://support-sandbox.purestorage.com/Solutions/SAN/Best_Practices/SAN_Guidelines_for_Maximizing_Pure_Performance

The SAN is a common component in many customer issues. This article provides a brief overview of our suggested guidelines to achieve the best possible performance; or, alternatively, remove your SAN from the list of variables to review when troubleshooting.

Summary of ideal standards:

FIBRE CHANNEL

- Use all of FlashArray's Fibre Channel ports (If your environment allows it, given host limitations).
- Single initiator -> multi-target zoning.
- Avoid ISLs if possible. If not possible, watch for frame discards on ISLs.
- Verify all paths are clean; address any CRCs or similar errors.
- Use consistent ports speeds fabric wide, i.e. do not connect 2Gb to 8Gb.

iSCSI

- Do not route iSCSI.
- VLAN tagging is only supported in Purity 4.6.0+. Use a MTU of 9000.
- **Use all of the FlashArray's interfaces** (critical for iSCSI performance).
- Verify all paths are clean; address any CRCs or similar errors.

HOST-SPECIFIC

- Use all external ports for bladed servers; these are heavily oversubscribed.
- Check our Solutions KB for host-specific Best Practice Guides.

Topology

Applies To: Fibre Channel, iSCSI

When configuring your SAN, it's important to remember that the more hops you have, the more latency you will see. For best performance, the ideal topology is a "Flat Fabric" where the FlashArray is only one hop away from any applications being hosted on it. For iSCSI, we recommend that you do **not** add routing to your SAN.

TOPOLOGICAL BOTTLENECKS

ISLS

To illustrate, we'll use an actual support case without names. In this example, we were seeing terrible performance from the test host. Latency varied wildly, with several hundred milliseconds of peak latency. Bandwidth never surpassed 100MB/sec.

1.1.1.1 ASSUMED TOPOLOGY BY PURE SUPPORT AND CUSTOMER
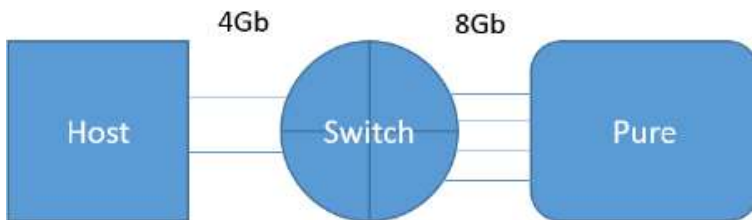
Actual topology
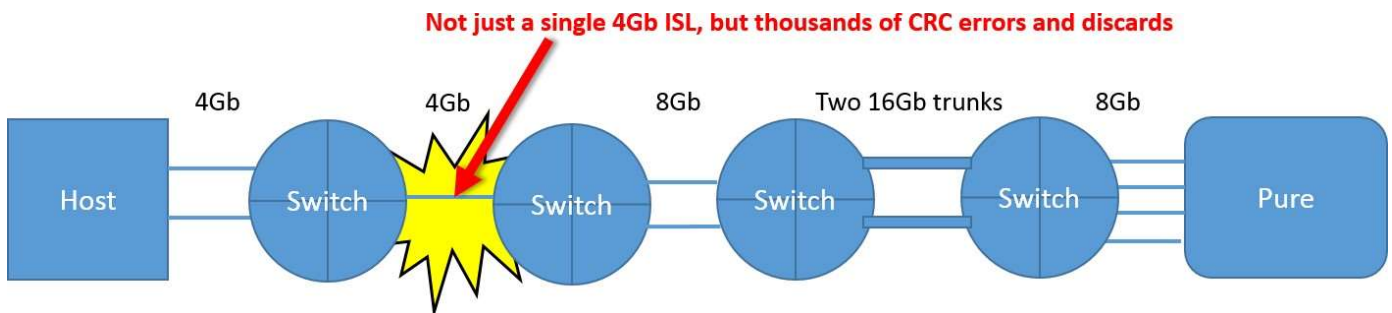
Make sure you know the topology. Please consult with your switch vendor's documentation on how to confirm your topology.

Some examples of helpful switch tools:

- Brocade: `topologyshow`, `fabricshow`, and `islshow`
- Cisco: `show interface brief` (look for e_ports) or `show topology`

BLADE SERVERS

Many of our customers use a CPU chassis such as a Cisco UCS or a HP c7000. These systems commonly have a number of bladed servers that connect to an embedded switch over a copper bus. All but UCS use a type of "dumb" switch (no zoning) which connects to a core fabric switch (this is true for FC and iSCSI). UCS connects to an additional switch/bridge, a "Fabric Interconnect" and then to a core switch.

Each one of these steps increases oversubscription.

For example, a bladed chassis might have 16 discrete servers. Each of these servers connects to an internal HBA which connects to the embedded switch. This switch takes these 16 servers and performs a form of NAT, forwarding all of their traffic to a lesser number of ports; commonly 4, and as many as 16 ports. These will log into a core switch passing frames over to storage. The oversubscription rate can get quite high if you use a hypervisor for your discrete servers. Add Virtual Machines to each blade, let's say 4 VMs per blade, and what do we end up with?

4VMs X 16 blades = 64 initiators

64 initiators share sixteen 8Gb ports. Sixteen 8Gb ports are funneled into an embedded switch with eight 8Gb external ports. We now have 8 entrance points for 64 hosts to communicate with storage, backup, virtual devices, etc. On an 8Gb switch, this is eight hosts for each 8Gb port. For daily operations, this is usually fine, but if you have several high demand systems on this chassis; a database, development systems, this configuration can behave like a bottleneck. This is the driving force behind 16Gb Fibre Channel and the coming 32Gb standard.

In one support case, each chassis only had two iSCSI connections to the core switch, providing, in the real world use, substantially less than 20Gb of bandwidth for all 64 hosts.

This configuration is particularly devastating for iSCSI. From VMware's Best Practices [pg 14] (emphasis is mine):

For iSCSI and NFS, make sure that your network topology does not contain Ethernet bottlenecks, *where multiple links are routed through fewer links*, potentially resulting in oversubscription and dropped network packets. Any time a number of links transmitting near capacity are switched to a smaller number of links, such oversubscription is a possibility.

Recovering from these dropped network packets results in large performance degradation. In addition to time spent determining that data was dropped, the retransmission uses network bandwidth that could otherwise be used for new transactions.

VMware adds this additional tip:

Be aware that with software-initiated iSCSI and NFS the network protocol processing takes place on the host system, and thus these might require more CPU resources than other storage options.

The cumulative impact of additional CPU overhead is another factor when laying out your iSCSI network. In other words, err on the side of too much bandwidth instead of too little.

Physical Paths

Applies to: Fibre Channel, iSCSI

Assuming that you have plenty of network ports, please do avail yourself of all of Pure's ports. You will need to make sure that you balance between maximizing connections to the Pure Storage FlashArray, and any host limitation you may have on the number of connections.

Why? Storage devices are often oversubscribed in today's SAN. By adding more physical paths, you help maintain oversubscription; you provide more pathways, more resiliency, more performance, mitigation of physical problems, and last but not least; you take better advantage of our CPU allocation.

How to Check?

GUI

Open our UI and click on SYSTEM -> Connections and you should see the below:

Note that at the bottom of the connections we list our own ports as "Target Ports" and show our connection speed. This is a nice way to easily verify if you connected to some rogue port fixed at a lower speed.

CLI

Here's the command syntax and output:

```
pureuser@myarray> pureport list --initiator

Initiator WWN  Initiator Portal        Initiator IQN                                        Target      Target WWN  Target Portal Target
IQN

-              172.28.109.37:52143    iqn.1998-01.com.vmware:vs-ucs3-b200-m2-17-4ccc62f8              CT0.ETH4  -

172.28.109.120:3260  iqn.2010-06.com.purestorage:flasharray.137a6af57d9<wbr/>4535c

-              172.28.109.37:52147    iqn.1998-01.com.vmware:vs-ucs3-b200-m2-17-4ccc62f8              CT0.ETH5  -

172.28.109.121:3260  iqn.2010-06.com.purestorage:flasharray.137a6af57d9<wbr/>4535c
```

```
-           172.28.109.37:52151   iqn.1998-01.com.vmware:vs-ucs3-b200-m2-17-4ccc62f8                    CT0.ETH6  -
172.28.109.122:3260  iqn.2010-06.com.purestorage:flasharray.137a6af57d9<wbr/>4535c
-           172.28.109.37:52155   iqn.1998-01.com.vmware:vs-ucs3-b200-m2-17-4ccc62f8                    CT0.ETH7  -
172.28.109.123:3260  iqn.2010-06.com.purestorage:flasharray.137a6af57d9<wbr/>4535c
-           172.28.109.37:52159   iqn.1998-01.com.vmware:vs-ucs3-b200-m2-17-4ccc62f8                    CT1.ETH4  -
172.28.109.124:3260  iqn.2010-06.com.purestorage:flasharray.137a6af57d9<wbr/>4535c
-           172.28.109.37:52163   iqn.1998-01.com.vmware:vs-ucs3-b200-m2-17-4ccc62f8                    CT1.ETH5  -
172.28.109.125:3260  iqn.2010-06.com.purestorage:flasharray.137a6af57d9<wbr/>4535c
-           172.28.109.37:52167   iqn.1998-01.com.vmware:vs-ucs3-b200-m2-17-4ccc62f8                    CT1.ETH6  -
172.28.109.126:3260  iqn.2010-06.com.purestorage:flasharray.137a6af57d9<wbr/>4535c
-           172.28.109.37:52171   iqn.1998-01.com.vmware:vs-ucs3-b200-m2-17-4ccc62f8                    CT1.ETH7  -
172.28.109.127:3260  iqn.2010-06.com.purestorage:flasharray.137a6af57d9<wbr/>4535c
-           172.28.109.38:52144   iqn.1998-01.com.vmware:vs-ucs3-b200-m2-17-4ccc62f8                    CT0.ETH4  -
172.28.109.120:3260  iqn.2010-06.com.purestorage:flasharray.137a6af57d9<wbr/>4535c
-           172.28.109.38:52148   iqn.1998-01.com.vmware:vs-ucs3-b200-m2-17-4ccc62f8                    CT0.ETH5  -
172.28.109.121:3260  iqn.2010-06.com.purestorage:flasharray.137a6af57d9<wbr/>4535c
-           172.28.109.38:52152   iqn.1998-01.com.vmware:vs-ucs3-b200-m2-17-4ccc62f8                    CT0.ETH6  -
172.28.109.122:3260  iqn.2010-06.com.purestorage:flasharray.137a6af57d9<wbr/>4535c
-           172.28.109.38:52156   iqn.1998-01.com.vmware:vs-ucs3-b200-m2-17-4ccc62f8                    CT0.ETH7  -
172.28.109.123:3260  iqn.2010-06.com.purestorage:flasharray.137a6af57d9<wbr/>4535c
-           172.28.109.38:52160   iqn.1998-01.com.vmware:vs-ucs3-b200-m2-17-4ccc62f8                    CT1.ETH4  -
172.28.109.124:3260  iqn.2010-06.com.purestorage:flasharray.137a6af57d9<wbr/>4535c
-           172.28.109.38:52164   iqn.1998-01.com.vmware:vs-ucs3-b200-m2-17-4ccc62f8                    CT1.ETH5  -
172.28.109.125:3260  iqn.2010-06.com.purestorage:flasharray.137a6af57d9<wbr/>4535c
-           172.28.109.38:52168   iqn.1998-01.com.vmware:vs-ucs3-b200-m2-17-4ccc62f8                    CT1.ETH6  -
172.28.109.126:3260  iqn.2010-06.com.purestorage:flasharray.137a6af57d9<wbr/>4535c
-           172.28.109.38:52172   iqn.1998-01.com.vmware:vs-ucs3-b200-m2-17-4ccc62f8                    CT1.ETH7  -
172.28.109.127:3260  iqn.2010-06.com.purestorage:flasharray.137a6af57d9<wbr/>4535c
```

In this example, we are using an FA-450 that has 8 physical ports. Now, you don't necessarily have to zone/ connect all 8 paths to each host like here; you can simply connect 4 ports (2 per controller) to each host.

Alternate for other hosts. For example, if you have 20 hosts, 10 can use any 4 ports and the other 10 hosts can use the other ports.

Due to the inherent overhead in iSCSI, we recommend using all possible interfaces per host. You will also want to use at least 8 sessions per host. This happens by default when you attach a host to all 8 Pure ports. If you do not do this, or if your model of FlashArray has less than 8 ports, configure for multiple sessions per host.

Here's the main point: you can see the same Initiator IQN (and it would be Initiator WWN for Fibre Channel) across 8 ports on Pure, the "Target IQNs."

If you see a host, but it is not mapped to any target port, this means that someone configured a host, manually entered an IQN or WWN, but that host has not logged into Pure. In other words, that host is offline for some reason.

Clean Paths

A surprisingly large number of performance cases have been resolved by replacing cables. Touching the ends of fibre optic cables, or letting them dangle in a rack (we all do it) leads to contamination. The SFP+ connections for iSCSI are *not* immune to this and are just as unforgiving.

You can clean the cable tips. But most seem to just replace the entire cable. Physical layer errors are insidious, they can destroy performance during peak loads, are often overlooked, and yet is the easiest fix for any performance problem.

The best way is to log into your switch and check for physical layer errors. For 10Gb switch vendors the reporting here varies; some report very little. But almost all 10Gb switch vendors report CRCs. Any port with physical layer errors (like CRCs) should have the cable cleaned or replaced. If that doesn't work, test/replace your switch SFPs. Avoid patch panels if at all possible, if not possible be sure to bypass it for testing.

For Fibre Channel, Cisco has limited diagnostics for physical layer errors. Brocade reports every error in two ways; per port (portstatsshow like Cisco's "show interface details") and in a full Excel like table named "porterrshow."

Porterrshow is a powerful troubleshooting tool only available through Brocade's CLI:

```
porterrshow          :

         frames        enc    crc    crc   too   too   bad    enc  disc  link  loss  loss  frjt  fbsy              c3timeout        pcs
      tx      rx      in     err  g_eof  shrt  long  eof   out  c3 fail       sync  sig                      tx    rx    err
  0:  51.4m   3.8m   0      0     0     0     0     0    0     0     0     0     0     0     0     0    0

  1: 173.0m  89.5m   0      0     0     0     0     0    0     0     0     0     0     0     0     0    0
```

Between the columns "frames rx" and "enc out" are your physical layer errors. In the above example, the paths are pristine.

1.1.1.2   CAVEATS:

1. For Cisco and Brocade, these numbers are only as good as the switch uptime *or* since stats were last cleared.

2. An older version of Cisco NX-OS didn't report any user command evidence of stats being cleared, but now does provide this under "show interface details" in newer versions.

We do collect physical layer errors on our ports and these are pulled from system statistics in hex format. Not very user-friendly to be sure and we're working to roll this data out so that you can review port errors in our UI. In the meantime, be assured that the arrays physical layer

errors are one of the first items we review for performance escalations and we're happy to provide these stats anytime you need it (for no additional charge, we'll also convert the data from hex to decimal).

Port Connection Speeds

Applies to: Fibre Channel, iSCSI

Often customers aren't aware of the rogue switch port that was hard fixed to 4Gb; or that the company's mission-critical database server, which cannot suffer any downtime, is still using 4Gb HBAs with outdated drivers. We have caught the occasional 2Gb host as well.

The item to bear in mind is that an SSD based array, with 8Gb or 16Gb HBAs, using Fibre Channel, can achieve extraordinary bandwidth with sub-millisecond latency. When you zone this to a 4Gb host there's a good chance that the host will cause back pressure, unable to keep up, forcing fame discards further down the path.

The best way to avoid performance problems with slower hosts or switches would be to:

1. Add more physical paths if possible and avail yourself multipathing, as per your hosts best practices.
2. In the event of having to use hardware 2 full port speeds from Pure (2Gb in a 8Gb SAN or 4Gb in a 16Gb SAN), you may need to fix the port speeds that Pure connects to one speed down.

1.1.1.3 HERE'S AN EXAMPLE:

Let's say you just bought an FA-450 with 16Gb HBAs to put into your brand new 16Gb SAN (awesome!). The hosts you are using to migrate data over to Pure are 4Gb. The switch is now in a position to manage 16Gb speeds for Pure, but 4Gb speeds for your host. This can lead to enormous backpressure causing frame discards to Pure, and potentially to all connected devices! (Each frame discard can trigger up to 12 seconds of paused IO between devices for error recovery between ra_tov and ed_tov fabric values).

Therefore, you may need to down-clock port speeds at the switch where Pure connects to 8Gb. This should sufficiently stop discards and allow you to, at least, push IO at the host speed.

To check port speeds for Pure:

CLI

```
pureuser@problemchild> purehw list                    Temperature  Details

Name       Status  Identify  Slot  Index  Speed
CT0        ok      off       -     0      -          -

CT0.ETH0   ok      -         -     0      1.00 Gb/s  -

CT0.ETH1   ok      -         -     1      1.00 Gb/s
```

```
CT0.ETH8   ok      -         5     8      10.00 Gb/s  -

CT0.ETH9   ok      -         5     9      10.00 Gb/s  -
```

Click on SYSTEM, Host Connections, and then look at the bottom of the main page. These are the speeds we've established with the switch, as well as our WWNs and IQNs which you can copy and paste if need be.

The best way to check port speeds for your switch is with the following (iSCSI left out due to the abundance of vendors):

1.1.1.4 BROCADE - SWITCHSHOW

Switchshow is a terrific command, displaying a list of all connected devices; the port speeds, port status, physical location, Fibre Channel address, etc.

```
switchshow:

...

switchBeacon: OFF


Index Slot Port Address Media Speed State            Proto

=================================================<wbr/>=
  0   1   0   6a0000    id    N4    Online     FC  F-Port  50:06:0e:80:10:1a:dd:e4

  1   1   1   6a0100    id    N4    No_Light      FC

  2   1   2   6a0200    id    N4    Online     FC  F-Port  52:4a:93:7e:27:89:c5:00
```

...

```
137  1  25  6a8900  id   N1   Online     FC  F-Port  50:06:0b:00:00:07:f2:f0

138  1  26  6a8a00  id   N4   Online     FC  F-Port  21:00:00:24:ff:0d:0f:ab

139  1  27  6a8b00  id   N2   Online     FC  F-Port  50:06:0b:00:00:39:6a:8e

140  1  28  6a8c00  id   N2   Online     FC  F-Port  50:06:0b:00:00:39:6a:8c

141  1  29  6a8d00  id        N4   Online      FC  F-Port  21:00:00:24:ff:02:5b:6f

142  1  30  6a8e00  id        N4   Online      FC  F-Port  21:00:00:e0:8b:85:96:1e

143  1  31  6a8f00  id        N4   Online      FC  F-Port  21:00:00:24:ff:0d:0e:03

 16  2   0  6a1000  id        N4   Online      FC  F-Port  50:06:0e:80:10:1a:dd:e5
```

Much of the output has been snipped, but take a look at the Speed column. The "N" before the number means that the port is set to auto-negotiate, and the following number is the speed that the device settled on.

In this example, Pure is on port 2 (we always start with a WWN of 52) and it is set to N4. So this is likely a 4Gb switch (as we are only 8 or 16Gb). Glance downward and notice the various port speeds. This customer hopefully does not intend to use the 1Gb device, as it is two generations behind 4Gb. Without using all eight FC ports on Pure, we would expect this customer to be bandwidth limited.

1.1.1.5 CISCO - SHOW INT BRIEF

```
`show interface brief`


-------------------------------------------------<wbr/>----------------------------
Interface Vsan  Admin Admin  Status            SFP     Oper  Oper  Port
                Mode   Trunk                   Mode  Speed  Channel
                       Mode                          (Gbps)
-------------------------------------------------<wbr/>----------------------------
fc1/29    11    auto   on     up               swl    F      8    --

fc1/30    11    auto   on     up               swl    F      8    --

fc1/31    11    auto   on     up               swl    F      8    131

fc1/32    11    auto   on     up               swl    F      8    131
```

Cisco reports the port speeds, but you'll have to make a note separately as to what connects to what interface (use "show flogi database" to know which WWN is connected to which Interface). In this example, all devices are connected at 8Gb.

Zoning

Applies to: Fibre Channel

Zone any single initiator to as many Pure ports as you like (for a dual fabric environment, use 4 ports through each fabric to each host port WWN).

Back in the day FC switch vendors recommended 1 host port to 1 storage port per zone. This was when a RSCN was sent to all devices and when a large switch was 32 ports. We don't recommend this, unless you have the desire and time to manage 4 to 8 zones per device.

Indeed, Brocade and Cisco no longer suggest 1 to 1 zoning:

Brocade: (takes you to a pdf of best practices, below quote is taken from page 11).

ZONING RECOMMENDATIONS

- Use single initiator single target or single initiator and multiple target zone sets. In a large fabric, zoning by single HBA requires the creation of possibly hundreds of zones; however, each zone contains only a few members. Zone changes affect the smallest possible number of devices, minimizing the impact of an incorrect zone change. This zoning philosophy is the preferred method and avoids RSCN performance concerns with multiple initiators in the same zone.

Cisco: (From MDS Configuration Guide)

The following guidelines must be considered when creating zone members:

- Configuring the same initiator to multiple targets is accepted.
- Configuring multiple initiators to multiple targets is not recommended.

Jumbo Frames

Applies to: iSCSI

A jumbo frame is an Ethernet frame that's larger than 1,518 bytes. The default MTU (Maximum Transmission Unit) for most devices is set to 1500. The FlashArray can support MTU up to 9000. Configuring the MTU to 9000 on the FlashArray, switch(es) and hosts will enable your environment for Jumbo Frames. In order to take advantage of the performance gains of using Jumbo Frames, you **must** enable the setting on the full path (Initiator -> Switch -> Target).

1.1.1.6   CHANGING MTU ON THE FLASHARRAY

Configure Jumbo Frames using CLI or GUI by setting the MTU to 9000.

GUI

CLI

```
pureuser@mv-sup-fa420> purenetwork setattr ct0.eth<wbr/>2 --mtu 9000
```

Name	Status	Address	Mask	Gateway	MTU	MAC		Speed	Services	Slaves	ct0.eth2
	enabled				9000	74:86:7a:d4:e5:1a		1.00 Gb/s	iscsi	-	

1.1.1.7   CHANGING MTU ON THE SWITCH AND HOST

Please refer to your vendor documentation on how to change the MTU. Here are some links to get you started:

- Cisco: Configuring the MTU

- Dell: How to configure MTU for Jumbo Frames on Dell Networking Force10 Switches

- AIX 7.1: Setting MTU Sizes

- RHEL: How do I set the MTU for my network?

- VMware: iSCSI and Jumbo Frames configuration on VMware ESXi/ESX (1007654)

- Oracle: Setting the MTU Property

Appendix F: Pure's Evergreen//One Upgrade Policy

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Evergreen//One™: Purity Install and Upgrade Policy

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For the latest information, please visit

Last Updated: June 01, 2022

Evergreen//One™

Purity//OS Install and Upgrade Policy

Background

Pure Storage makes ongoing investments in hardening, optimizing and enhancing the capabilities of the Purity//OS operating environments for FlashArray™, Cloud Block Store (CBS)™ and FlashBlade™ platforms. Starting in June 2022, all Evergreen//One™ customers are required to stay in compliance with the Purity//OS install and upgrade and version management policy.

Staying in compliance with Evergreen//One™ Purity OS upgrade and version management policy helps ensure Pure Storage, our partners and most importantly our customers achieve or exceed Service Level Agreements (SLA) specified in the service contract. When FlashArray™, CBS and FlashBlade™ platforms versions fall out of compliance with the policy, Pure's ability to deliver SLAs may be adversely impacted. Customers not in compliance with the policy, but remain on a supported Purity version will continue to be supported on a best efforts basis. However, customers not in compliance will no longer be eligible for service credits if SLAs are not achieved.

Applicable Services and Platforms

Service	Purity//OS	Platform(s)

Service	Purity//OS	Platform(s)
//Block	Purity//FA	FlashArray™ , FlashArray //C and Cloud Block Store™ (CBS)
//UFFO	Purity//FB	FlashBlade™

Policy Terms

Evergreen//One™ customers are required to partner with Pure support to facilitate upgrades of Purity OS on all FlashArray™, FlashBlade™ and Cloud Block Store platforms at least twice per calendar year of service runtime. Purity OS versions installed at time of install and upgrade must always comply with the Purity OS codelines referenced in this article.   The policy is flexible, supporting both Long Life Releases (LLR) and Service Releases (SR) however, the preference is for Evergreen//One™ customers to bias toward deploying Long Life Releases (LLR) unless a Service Release (SR) is required for specific functionality.

# Policy Guidelines	Detail
1 Only install supported Purity versions specified in this policy	For all new array installs a specified in this KB. Unles
2 Upgrade Purity at least twice per calendar year of service runtime	The minimum separation o months and no longer tha
3 Schedule your preferred upgrade window twice a year via Pure1	Ensure the target Purity v to Schedule your Upgrade

The Purity Install and Upgrade Policy will be updated quarterly but may be updated more frequently to ensure an optimal service experience. As long as the version of Purity selected at the time of install or upgrade was specified as an Evergreen//One™ supported codeline, the customer will be compliant. Previously specified supported codelines will be retained for reference at the end of this KB article. Please note that some of the supported versions of Purity may additional qualification and/or approval from Pure prior to installation to use specific features and functions.

Evergreen//One Purity OS Upgrade RACI

RACI: R-Responsible, A-Accountable, C-Consulted, I-Informed

	Description	Pure	Customer[1]
1	Schedule Purity OS Upgrade date and time, and preferred compliant Purity OS codeline through Pure1 twice per calendar year, per the upgrade policy.[2]	C,I	R,A
2	Run a Pure1 cloud based pre-upgrade health check and identify any issues that need to be resolved prior to the upgrade.	R,A	C,I
3	Resolve any external issues prior to upgrade identified by Pure support.	C,I	R,A
4	Open remote assist (RA) port on array to enable Pure support to connect to array	C,I	R,A

5	Stage new Purity OS code to array and run a live pre-install health check prior to upgrade commencing.	R,A	C,I
6	Work directly with Pure support to resolve any identified issues external to the array (e.g. network or host configurations) prior to running upgrade.	C,I	R,A
7	Run the upgrade process on the array platform, including required controller reboots.	R,A	C,I
8	Run the final health check after the upgrade sequence is complete.	R,A	C,I
9	Resolve any and all array side errors or issues resulting from upgrade.	R,A	C,I
	Description	**Pure**	**Custome r** [1]
10	Resolve any and all host, network or application side errors resulting from upgrade.	C,I	R,A

[1] Customer functions may also be performed on your behalf by your preferred Pure authorized partner

[2] Scheduling upgrades may also be done on your behalf in partnership with your Pure advanced resource (Account System Engineer, Business Critical Service Rep or Customer Success Manager).

Out of Cycle Upgrades

In rare circumstances, Pure support may identify a critical issue that requires a more immediate out-of-cycle Purity upgrade to prevent a known issue that could adversely impact storage service security, performance or availability. If this occurs, Pure support will proactively

create a support ticket on behalf of the customer and reach out to the primary contact to facilitate an upgrade as soon as possible. Any version of Purity recommended by Pure support and array(s) subsequently upgraded to that version, will be supported and included in this policy as a supported Evergreen//One release. Customers who have arrays that were upgraded out of cycle, are still required to follow the standard policy recommendations and schedule the next Purity upgrade as early as four and no longer than seven months after the last upgrade.

Grace Period

Over the course of the year there may be times when Evergreen//One™ customers are running older Purity versions than those specified in the most recent version of the policy. Installing any of the Evergreen//One currently supported versions at the time of install or upgrade ensures full compliance for as many as seven months of run time. Previous codelines of the policy my be referenced made available in the support version history section at the end of this KB article.

About the Upgrade Process

Pure Customer Success, Business Critical Services (where applicable) and Pure Support will work closely with customers to ensure Purity upgrades run smoothly and non-disruptively. It is critical that a technical resource within the customer datacenter environment is always available during the upgrade process to work with Pure ensure dependencies in external components like storage networks and compute environments are configured following Pure storage best practices for FlashArray™ and FlashBlade™. Upgrade health checks are run before, during and after various upgrade procedures to ensure the experience is non-disruptive. These checks may identify configuration issues in external components like networks and servers that will need to be addressed to ensure a successful upgrade. The Responsible, Accountable, Consulted, or Informed (RACI) Table below

clearly describes the steps, roles and responsibilities involved in the upgrade process.

Current Evergreen//One™ Supported Purity//OS versions

Lasted Updated: 6/01/2022

//Block Service

Purity//FA and //C Version	**Release Notes**

6.1.20 (or higher within the 6.1.x release)	6.1.20
6.3.4 (or higher within the 6.3.x release)	6.3.4
6.2.13 (or higher within the 6.2.x release)	6.2.13
5.3.21 (or higher within the 5.3.x release)	5.3.21

//UFFO Service

Purity//FA Version	Release Notes
4.0.1 (or higher within the 4.0.x release)	4.0.1
3.1.15 (or higher within 3.1.x release)	[3.1.x](#)
3.2.9 (or higher within the 3.2.x release)	3.2.x
3.3.3 (or higher within the 3.3.x release)	[3.3.x](#)

How to Schedule Your Upgrade

- Customers can schedule upgrades at their preferred window by logging into Pure1 and navigating to Software Lifecycle→ Purity Upgrades→ Select Array(s) →and select "Schedule Upgrade".

- From Pure1, its highly recommended that customers run Upgrade Checks by selecting "Start check" on all Evergreen//One systems.

- After the Upgrade Check is complete, be sure to review "View Check Results" output and ensure that all tests pass. If there are any issues identified during the check that need they will need to be resolved before the upgrade can proceed. Issues that are external to Pure may be identified in the network or host compute environment (e.g. multi-pathing not configured properly), the customer must first remediate the issue then rerun the test again until all results come back as "Passed". If there are issues that are any issues shown in the Pure system configuration, please contact Pure support.

Supported Version History

NOTE: Customers currently running any Purity codelines in previous quarters policy will continue to be supported from the date of installation to a maximum of seven months of run time. The next upgrade will be scheduled anywhere from four to six months thereafter.

Policy Effective Timeframe: 1/1/2022 - 3/31/2022

//Block Service

Purity//FA and //C Versions	Release Notes
6.0.9 (or higher within the 6.1.x release)	6.0.9
6.1.12 (or higher within the 6.1.x release)	6.1.17
6.2.4 (or higher within the 6.2.x release)	6.2.4
5.3.18 (or higher within the 5.3.x release)	5.3.18

//UFFO Service

Purity//FB Version	Release Notes
2.4.13(or higher within 2.4.x code line)	2.4.13
3.1.12 (or higher within 3.1.x release)	3.1.12
3.2.5 (or higher within 3.2.X code line)	3.2.5
3.3.1 (or higher within 3.3.x code line)	3.3.1

Appendix G: Evergreen//One RACI

Evergreen//One RACI

R-Responsible, A-Accountable, C-Consulted, I-Informed

No	Description	Pure	End User
	STRATEGY AND ENGINEERING		
1	Engineering and Certification Integration standards as they relate to Pure deployments	C,I	R,A
2	Prepare high-level design and low-level designs (Physical & Logical)	C,I	R,A
3	Review and document security procedures and requirements as they relate to Pure deployments whilst adhering to Security standards and guidelines set out by the end customer	C,I	R,A
	INSTALLATION[1]		
4	Site planning –Provide prerequisites for the physical installation of the storage arrays like Rack space, Power, Cooling, Connectors, Cabling, etc.	R,A,I	C,I
5	Configuration –the Basic configuration of the storage array	R,A	I
6	Preparation of the Networking environment to allow connectivity to Pure1® servers and replication between the arrays (where required) including, IP address assignment, routing and firewalls configuration, DNS and proxy assignment.	C,I	R,A
7	Design and configure the monitoring environment required for monitoring of the storage arrays via PURE1® Cloud	R,A	I
8	Provision of service infrastructure and cabling between arrays and switches	C,I	R,A
9	Installation of Pure storage equipment: racking, stacking, internal cabling, power-on, health check, etc.	R,A	C,I
10	Testing of overall storage solution end to end	C,I	R,A
	MANAGING STORAGE SERVICES (Evergreen//One Customer Success)		
11	Volumes provisioning, Host connections, network, rack provisioning, and BAU operations	I	R,A
12	Service Infrastructure support- Detect identified events and notify, Perform fault isolation and troubleshooting, hardware replacement, software upgrade.	R,A	C,I

13	Software License –Provide software licenses within the service infrastructure and software stack shipped by Pure for all the basic and advanced features of the operating system.	R,A	I
14	Evergreen non-disruptive service infrastructure upgrades throughout the Service Term	R,A	I
15	Support services - uptime guarantee with no exclusions for capacity upgrades, refresh or other planned outages. 15 minute Sev 1 response time SLA, 4 hours on-site break-fix response time SLA, case reporting and handling by the portal, email or phone	R,A	I
16	Remote monitoring, reporting, predictive analytics, and automated support services	R,A	I
17	Asset management, capacity management, shipping logistics and lifecycle management including non-disruptive capacity upgrades and any required service infrastructure refresh	R,A	I
18	Install services to support capacity expansions/reductions and required upgrades	R,A	I
19	Ownership of overall change control process for all customer infrastructure including coordinating approvals as required	C,I	R,A
20	Equipment decommissioning and secure erase (working with Pure's support) at the time of termination	C,I	R,A
21	Equipment pick up and returns at the time of termination or swap	R,A	C,I
	REPORTING, TRAINING, AND SUPPORT		
22	Monthly consumption reporting and regular service performance reviews across locations, along with recurring billing and supporting details to facilitate internal chargeback	R,A	C,I
23	Documentation – Develop and deliver admin guides, operational manuals, best practice white papers, etc.	R,A	I

Appendix H: Evergreen//One Included Services Description

Evergreen//One Included Services Description

Services	Scope covered
Installation Services[1]	- Install, expand, and upgrade implementation support and services. - Provide advice on best practices around host integration, architecture, design, migration services, and site planning.
Onboarding Services	- Define and govern standards for project initiation through project completion: staging, presentation, and sign off of key deliverables, such as Project Kick-offs, Project Plans, Change Orders, planning sessions, regular status, and risk reports. - Resources onboarding and coordination with end customer, as required - Fulfillment tracking, installations, and coordination
Evergreen//One Customer Success	- Named Customer Success Manager to help manage and support the service subscription needs 365x24x7 Premium Support with four-hour Sev1 Service Infrastructure replacement[2] - Proactive monitoring for SLA/SLOs, health checks, and code upgrade assessments - Non-disruptive remote software upgrades - Capacity management with customized capacity plans supporting proactive deployments and upgrades for service infrastructure - Support Escalation Management and personalized support, as required - Engage technical expertise (Implementation, Integration, Solution Architects, Technical Training, etc.) as required - Engage Service Account Manager, Service Delivery Managers and other resources as required to deliver the service - Returns, exit planning, and secure data erase support
Portworx Essentials	Included at no extra charge with all Evergreen//One™ subscriptions.

Appendix I:

Non-Return Solid State Drive Option

Non-Return Solid State Drive Option

Pure Storage® understands that, when non-volatile media (flash modules, such as DFMs and SSDs, as well as NVRAMs and boot drives) require replacement, you may prefer to keep these drives in- house and maintain control over the disposal of that data/ information. Pure Storage offers an option that enables you to keep failed drives that contain sensitive data, rather than returning them to Pure Storage.

Requirements for Non-Return

Purchase of the non-return option from Pure Storage requires a valid maintenance and support contract. The non-return option is available for purchase in advance in a variety of durations and is non-refundable. The covered devices include DirectFlash Modules (DFMs), Flash Modules (SSDs), NVRAM Modules, and Boot Drives. You may also pay for replacement devices, as needed, though at a higher rate.

Non-Return Process

Pure Support will work proactively with you on flash module failures or malfunctions. A support engineer will diagnose your system problem and may recommend a replacement drive. The failed drive would ordinarily be returned to Pure Storage.

PURESTORAGE®

Before the actual replacement occurs, you should inform Pure Storage of your intention to keep the failed drive. You may also need to copy the information found on the label of the failed drive and provide it to Pure Storage. The drive will then be replaced. You will be responsible for destroying the data and permanently removing the drive from production. You are responsible for complying with your own data security requirements and other applicable laws.

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800.379.PURE