

# Who Am I?

**I have a job!** @Pure (Principal Technologist)  
**Location** Detroit, MI  
**Email** vharrison@purestorage.com  
**Background** 25+ years in technology  
Former VP of IT Ops  
Former EMC, Dell, Google  
**Certs** Netware, Cisco, Google, Pure  
**Fun** Gamer and mediocre ukulele player





# Flash Forward: emerging tech in the datacenter and beyond

Valerie Harrison - Principal Technologist, Pure Storage



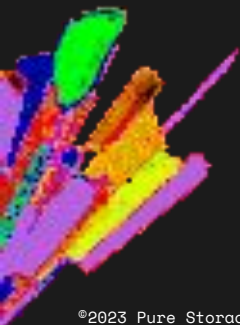
## FLYING MACHINES WHICH DO NOT FLY.

The ridiculous fiasco which attended the attempt at aerial navigation in the Langley flying machine was not unexpected, unless possibly by the distinguished Secretary of the Smithsonian Institution, who devised it, and his assistants. Prof. MANLY, who undertook the

to sprout them ab initio, it might be assumed that the flying machine which will really fly might be evolved by the combined and continuous efforts of mathematicians and mechanicians in from one million to ten million years—provided, of course, we can meanwhile eliminate such little drawbacks and embarrassments as the existing relation between weight and strength in inorganic materials. No doubt the problem has attractions for those it interests, but to the ordinary man it would seem as if effort might be employed more profitably.



**Happy  
Anniversary  
Pure Storage**



# The World's Most Advanced Data Storage Platform

Pure Storage® delivers the industry's most advanced data storage platform to **store, manage, and protect** the world's data at any scale.

From AI to archive, Pure Storage provides a cloud experience with one, **unified storage-as-a-service platform across on premises, cloud, and hosted environments**—all built on the proven, non-disruptive Evergreen® architecture. By enabling organizations to **save time, money, and energy**, it's easy to see why Pure Storage is chosen by leading brands and has the highest Net Promoter Score in the industry.



## Customer-First Innovation

[Customer Case Studies](#)

**13K** Global Customers

Organizations Across a Rapidly Growing Set of Industries Trust Pure Storage With Their Data

**40%**

Of U.S. Federal Agencies, Including Three Branches of the DOD

**~62%**

Of Fortune Five-hundred Companies

### A FEW OF OUR CUSTOMERS



## Recognitions

[Industry Recognitions](#)

**4X** Great Places to Work

Recognized in Fortune's Best Workplaces in Technology List for Four Consecutive Years

**11X**

Gartner® Magic Quadrant™ Positioned as a Leader for Eleven Consecutive Years.

**82**

Net Promoter Score The Highest in the Industry.



## Environmental impact

[Pure Storage ESG Report Fact Sheet](#)

### Business Value

Upto **5X** Less Energy    Upto **5X** Less Rackspace    At least **90%** Less E-waste Generated

### Environmental

**100%** of data center waste (by weight) from landfill guaranteed by new waste service vendor

**77%** of the square footage of our global office real estate portfolio is certified LEED or equivalent



# The Pure Storage Platform

The Industry's Simplest and Most Consistent



## Virtualized Enterprise Apps

SAP | Database | VMWare | LOB



## Container Data Management

Automate | Protect | Unify | Extend

### Storage as a Service

### Effortless Management at Any Scale

### Simple Unified Infrastructure

### Evergreen Architecture



On-premises



Public Cloud



Hosted

- ▶ **Simplicity**  
100% unified infrastructure
- ▶ **Ultimate Reliability**  
Ending downtime and migrations forever
- ▶ **Agility and Optionality**  
All the benefits of SaaS
- ▶ **Ongoing Savings**  
Efficiency that drives results



**THERE IS NO CLOUD**



**IT'S JUST  
SOMEONE ELSE'S COMPUTER**

imgflip.com





# Cloud

- Cloud isn't a zip-code but an operating model
  - Scalability
  - Agility
  - Pay-per-use/measured
  - On-demand
  - Broad access
  - Multi-tenancy/resource pooling
  - Reliability - SRE model, SLAs/SLOs/error budgets
- We enable cloud operating model, whether Public cloud or private
  - STaaS for agility, spin up/down
  - CBS
  - Replication, migration, snapshots
  - Dev/test, DR, prod





# Automation/Orchestration

Cloud operations

IAC

Reduce human toil, and error

Reproducible, declarative, stored in repository like code

Terraform providers, Ansible playbooks, Python code, Swagger API, Powershell, SCOM, etc.

<https://code.purestorage.com/>

AI Copilot



# API-driven architectures

A development strategy that uses application programming interfaces as the foundation of an application's design and build. It allows services to communicate with each other, and share data.

Simple/reliable - decouples systems connected, makes security easier

Agility - can be multi-cloud

Predictability - modular, re-usable

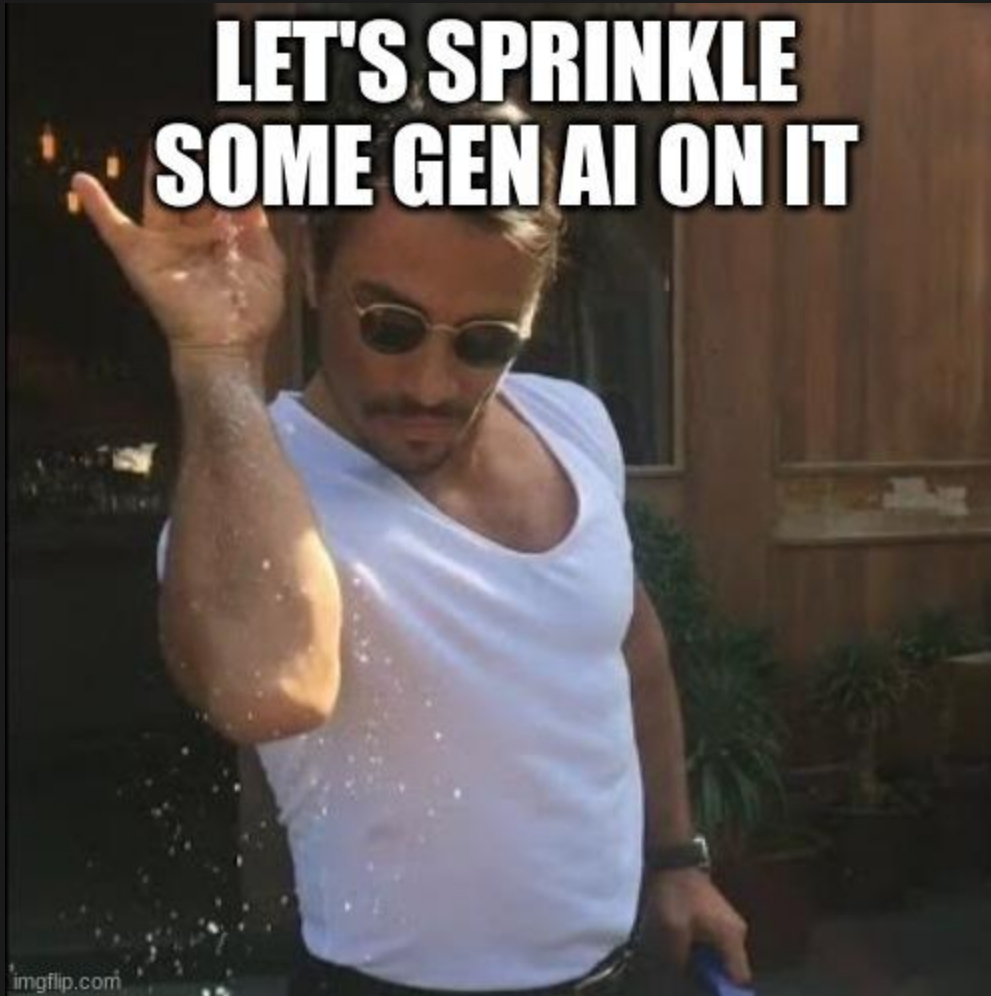
Array REST APIs for provisioning

Pure1 REST API to get statistics on your entire fleet

Fusion - multi-array fleet management, single API to manage with code



**LET'S SPRINKLE  
SOME GEN AI ON IT**



# A new era of data is here. **Now.** The bad news? It's completely **unpredictable.**

- Explosion of new data types causing even further fragmentation and complexity
- AI future is still being formed but data demands will be extensive
- Data being split across even more places - cloud/on-prem/hosted

**54%**

of IT budget to be spent  
on AI efforts<sup>1</sup>

**50%**

adopting a service-first  
storage approach<sup>2</sup>

<sup>1</sup>VansonBourne-The Innovation Race Results: Top Issues and Concerns Revealed.

<sup>2</sup>Gartner-Market Guide for Infrastructure Consumption Services.



# AI: Today's Environment

Very fast- moving, early stage technology

Complex workflows and unclear use cases

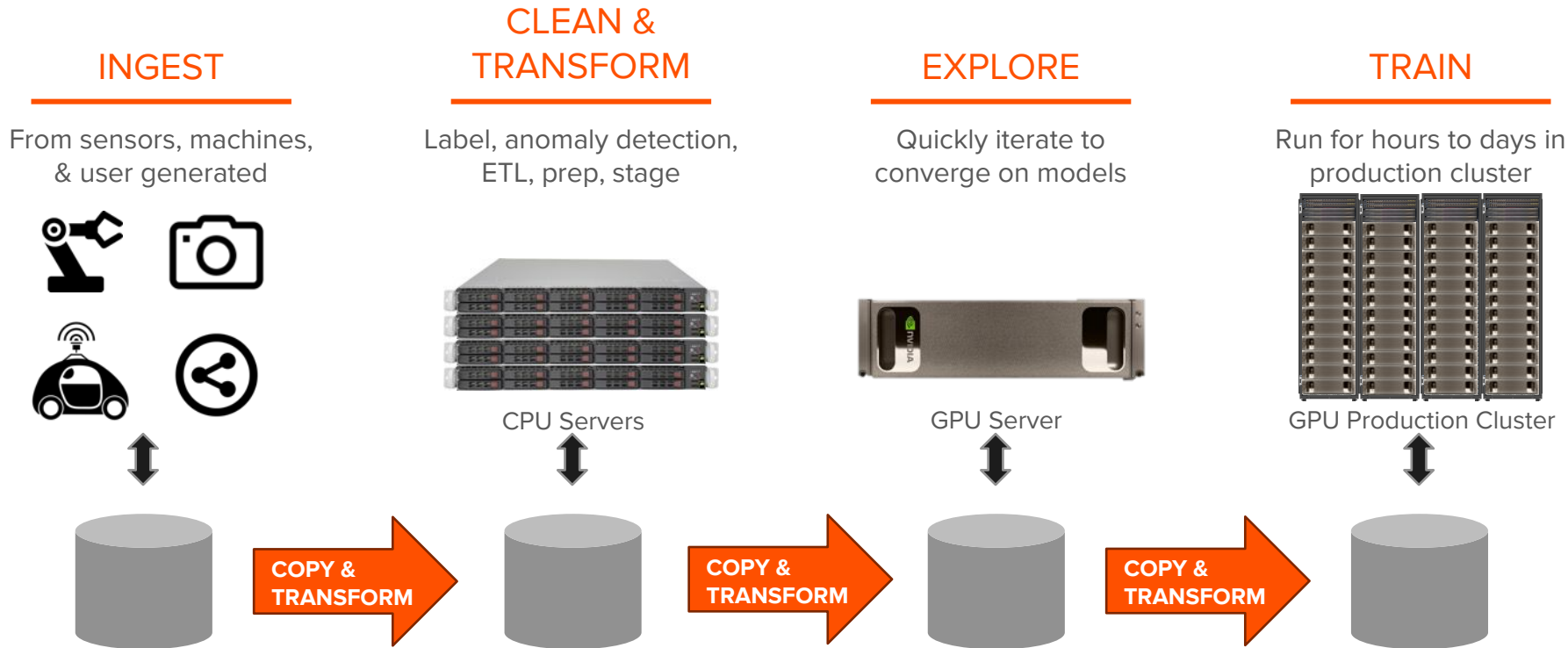
Fragmented data storage environments

Inflexible storage architectures lacking enterprise-grade reliability

Inability to resize or upgrade performance without complex and risky infrastructure planning



# COMPLEXITIES OF DATA IN PRODUCTION









# The bigs are turning to Nuclear power to feed the AI beast...

The New York Times

## Hungry for Energy, Amazon, Google and Microsoft Turn to Nuclear Power

Large technology companies are investing billions of dollars in nuclear energy as an emissions-free source of electricity for artificial...

4 weeks ago



GeekWire

## Microsoft signs deal to revive Three Mile Island nuclear reactor to help power data centers

Microsoft on Friday announced a 20-year deal to restart a nuclear reactor at Pennsylvania's Three Mile Island — a facility made infamous by a...

1 month ago



CNBC

## Amazon goes nuclear, to invest more than \$500 million to develop small modular reactors

Amazon Web Services is investing more than \$500 million in nuclear power, announcing three projects from Virginia to Washington state.

4 weeks ago



Fortune

## Google will help build seven nuclear reactors to power its AI systems

Google will help build seven nuclear reactors to power its AI systems ... Google is backing nuclear power plants to power its AI ambitions.

1 month ago



The Register

<https://www.theregister.com> › 2024/11/04 › aws\_nuclea...

## Regulators reject power deal for nuclear Amazon datacenters

Nov 4, 2024 — Federal regulators **rejected** a deal that would let it draw more **power** from a Susquehanna plant to supply new bit barns next to the site, on the ...

# Environmental, Social, and Governance (ESG)

Our mission to empower innovators goes hand in hand with our commitment to drive responsible and sustainable business across our value chain.

[Read the ESG Report](#)

[Read the ESG Fact Sheet](#)





## Environmental impact

Pure Storage ESG Report Fact Sheet

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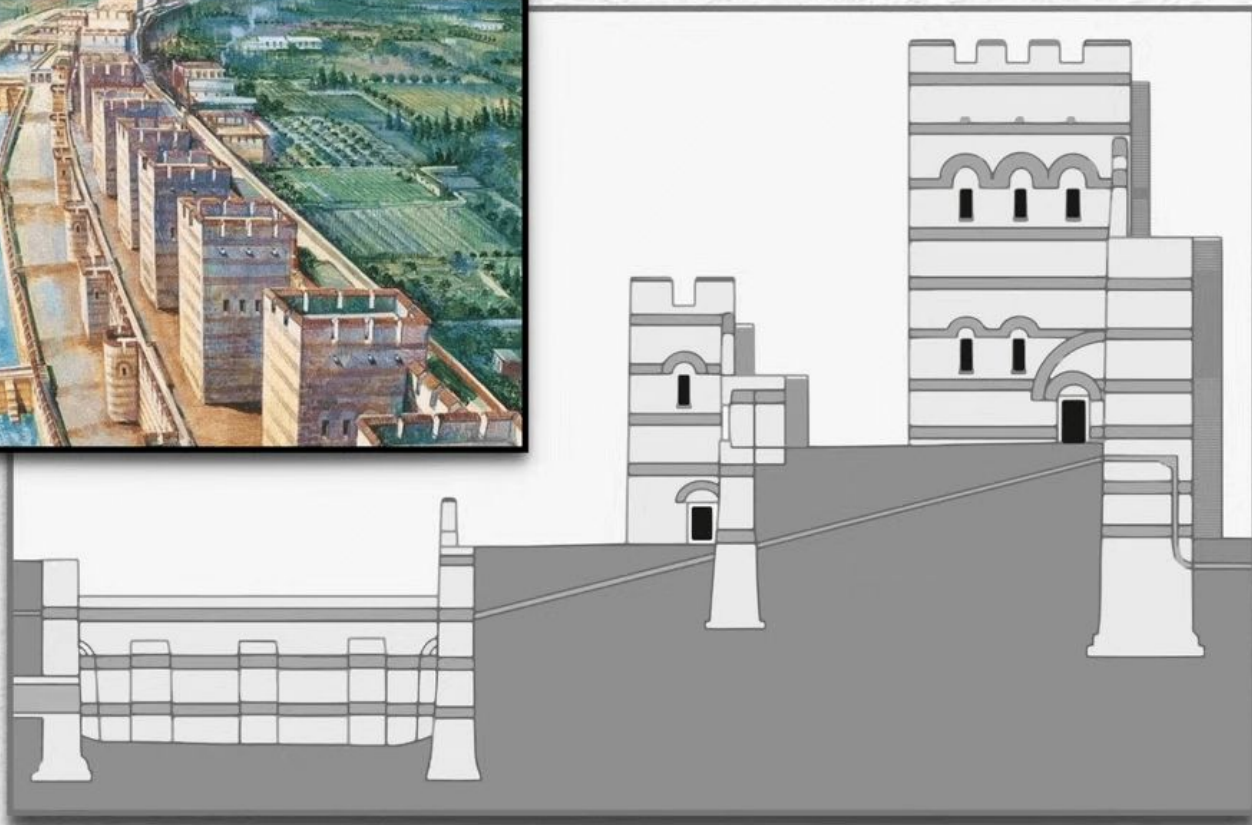
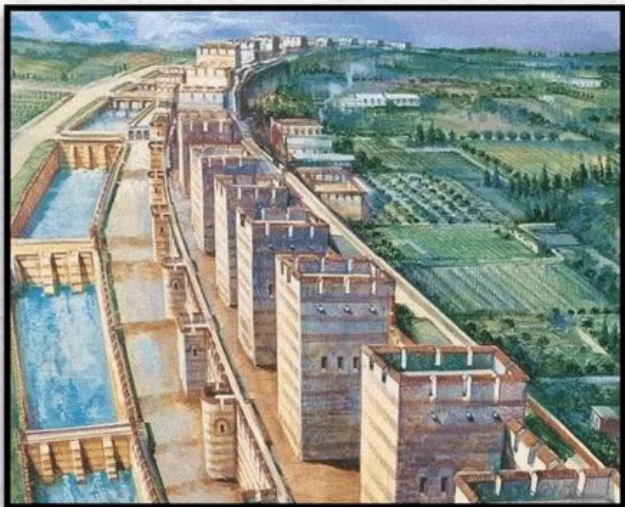
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# Cyber resiliency

Improve posture

Don't just solve for DR/physical disasters

Most disasters are operational or malicious

Fast backups are great, but fast restores are what get you back in business

Admin story - deleted 12TB VM

Snapshots vs backups

Anomaly detection - what we surface to ourselves and customers

State/government story?

Ottawa County, ransomware protection for critical services

Mississippi Dept of Revenue - faster backups

City of Baton Rouge - immutable snapshots, used cyber grant to fund



# Pure Storage Cyber Resilience Capabilities



## Tiered Resilience

- Snapshots
- Asynchronous replication
- ActiveCluster
- ActiveDR
- Portworx® Enterprise
- Pure Protect



## Data Security / Ransomware

- Snapshots
- SafeMode™
- Splunk/Elastic on FlashBlade®
- Ransomware recovery SLA in Evergreen//One™



## Backup / Recovery

- Snapshots
- Fast, rapid restore using Pure as a target
- Cloud archive of snapshots



## Operational Agility

- AI-driven planning
- Data protection/security assessment
- Workload placement modeling
- Performance SLA
- Proactive and on-demand
- Buffer capacity SLA
- Effortless scale

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 Evergreen //Forever™  Evergreen //Flex™  Evergreen//One™

## Modern, Flexible Consumption



# Case Stories

Multi-Site Internal  
Cloud that saw  
**recovery time**  
**reduced** from 4 hours  
to seconds.

## Anonymized Story:

- An attacker encounters SafeMode protecting snapshots - disappears **without even encrypting or requesting ransom.**

Other customers enjoying the ability to **manage data with purpose**, assigning **different data resiliencies** to employ nearline RPO/RTO for some, and simple streaming backup protection for others.

Three site customer,  
**successfully**  
**meeting SLAs**  
**without needing**  
**streaming backup**



**Ransomware**  
**recovery** from  
FlashArray snapshots  
alone!





# Case Stories



- **Hospital Recovery from Ransomware -**

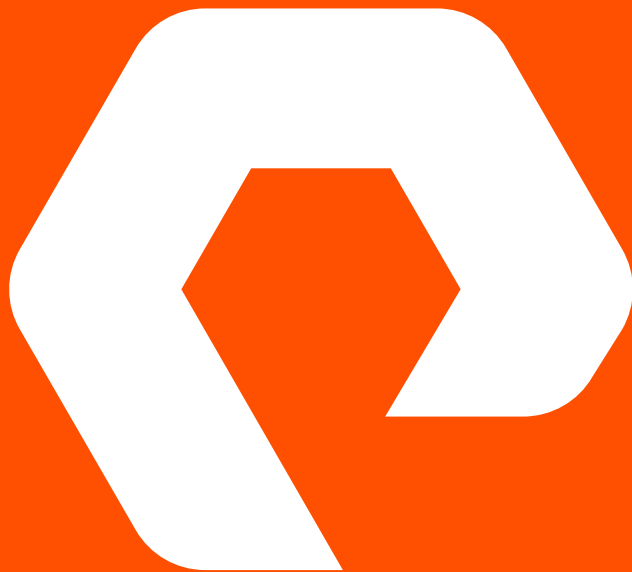
[Pure Storage Accelerates Hospital's Recovery from Ransomware Attack](#)

- **Anonymized Stories**

- Positive - Attacker encounters SafeMode protecting snapshots - disappears without even encrypting or requesting ransom.
- Negative - Customer with great Defense in Depth but no SafeMode. Attacker compromises IT Operations password database - SM would have prevented snapshot eradication.
- Negative - Attackers compromised AD domain admin - placed keylogger on storage admin's computer. SafeMode would have saved this scenario.







Uncomplicate Data Storage, Forever