Data-as-a-Service
David Flynn – CEO
Company Overview

Mission: Simplify use of data across hybrid multi-cloud and K8s

- David Flynn, Founder and CEO (Fusion-io)
- Headquartered in Silicon Valley
- Cloud-native
Use-case 01: On-ramp to Hybrid Cloud (before Hammerspace)

**Goals:**
- Protect data
- Modernize apps
- Data mobility
- Break vendor lock-in

**Challenges:**
- Multiple storage vendors
- Copying all data between sites is inefficient and slow
- Cloud lacks complete enterprise data services
- Hard to manage data securely across sites

IT Manager, Storage Architect
Use-case 02: Content Production (before Hammerspace)

Media & Entertainment

▪ Goals:
  ▪ Multi-site data collaboration
  ▪ Burst-to-cloud for post-production

▪ Challenges:
  ▪ Automate workflows across sites
  ▪ Data sprawl makes it hard to present the right data in timely fashion
  ▪ Low performance slows production
  ▪ Multi-site data protection is complicated and expensive
Use-case 03: Kubernetes Data Mgmt. (before Hammerspace)

Goals:
- Use common infrastructure for Kubernetes
- Accelerate data workflows for DevTest
- Data protection for persistent data

Challenges:
- Specialized container storage creates new silos
- Setting up DevTest environments with production data takes too long
- Kubernetes lacks enterprise data services and protection
- DevOps doesn’t do storage
Defy Data Gravity – Rise above the infrastructure
HAMMERSPACE
Data-as-a-Service

- Performance
- Availability
- Durability
- Governance
- Locality
- Cost savings

SAS NVMe
iSCSI / FC NVMeOF
DAS / SAN / BLOCK

NFS SMB
NAS / FILE

S3 Swift
OBJECT

Cloud Storage

ALL PROTOCOLS

Kubernetes
CSI PVs
NFS SMB
S3

UNIVERSAL GLOBAL NAMESPACE

CORPORATE DATA CENTERS
Applications
LINUX
WINDOWS

REMOTE OFFICES
Applications
LINUX
WINDOWS

Azure
Google Cloud
aws

AUTONOMIC DATA SERVICES
METADATA SERVICES

HARMERSPACE
Universal Global Namespace
 Fully managed, Active-Active, Multi-site
Universal Global Namespace
Fully managed, Active-Active, Multi-site

- Corporate Data Center
  - Applications
    - Linux
    - Windows
  - Existing Storage
  - pNFS
  - NFS/SMB

- HammerSpace
  - Data Services
  - Metadata Services

- Bi-Directional Metadata Replication

- Public Cloud
  - Applications
    - Windows
    - Linux
  - Cloud Storage Services
  - NFS/SMB
  - pNFS

- Global Dedupe, Compression, Encryption

- Object Storage
Enterprise Hybrid Cloud Data Services

File Granular Data Management
- Support any File, Block or Object Storage
- Live Data Mobility
- Optimized Data Placement
- Intelligent Data Tiering
- Extensible Metadata
- Hybrid Cloud Storage

Hybrid Multi-Cloud
- Integration with Cloud Analytic Services
- Multi-site Conflict Disambiguation
- Multi Protocol (NFS, SMB)
- Active-active Universal Global Namespace

Data Protection
- Active-active DR
- Encryption
- Global Snapshots
- Undelete
- Automated Data Recovery

Kubernetes
- Unified Block and File
- Data Air-Gap
- CSI Plug-in
On-Ramp to Hybrid Multi-Cloud
Simplify Burst-to-Cloud and Multi-site workflows

- Turn on Hybrid Cloud in 10 minutes
- Use existing data sources in-place
- Make any storage cloud-native
- Break vendor lock-in
- Cost vs. performance optimization

Deploy Hammerspace  Connect Storage  Run Apps Anywhere

Universal Namespace

Live Data Mobility
Optimize Resources
Access Data
Protect Data
Compliance
Bring Enterprise Data Services to Kubernetes
DevOps and Database workflows

- Make any storage K8s-native
- Multi-cluster support on any platform, local and over distance
- Instantly start stateful apps anywhere
- Native integration using container storage interface (CSI)
- Data protection using snapshots
- Active-active Disaster Recovery
The Customer Journey

1. Streamline Hybrid Multi-cloud
   - Cloud Performance Management
   - Cloud Cost Management
   - Reduce Legacy Infrastructure

2. DevOps DataOps
   - Multi-Cluster Kubernetes Data Management
   - DevTest Workflows
   - Stateful Apps in Production
   - Data Protection for Containers

3. On-Ramp to Hybrid Multi-Cloud
   - Burst-to-Cloud
   - Multi-site Collaboration
   - Autonomic Data Mgmt
   - Active-DR

HAMMERSPACE
Use-case 01: On-ramp to hybrid cloud
(after Hammerspace)

Enterprise

- **Agility**
  - Instant data availability, everywhere
  - Apps run without modification

- **Control**
  - Data is protected on-prem and in the cloud
  - Reduced risk with autonomic data management

- **Efficiency**
  - Use existing storage infrastructure
  - Reduce IT intervention

IT Manager, Storage Architect
Use-case 02: Content Production (after Hammerspace)

Media & Entertainment

- **Agility**
  - Artists collaborate across multiple sites
  - Use existing production tools

- **Control**
  - Production performance is automated

- **Efficiency**
  - Data flows at file level granularity
Use-case 03: Kubernetes Data Mgmt. (after Hammerspace)

Financial Services

- Agility
  - Access data across multiple clusters
  - Non-disruptive data mobility
- Control
  - Protect data in K8s
  - Adjust storage performance on-the-fly
- Efficiency
  - Make any storage cloud-native
  - Copy-free DevTest workflows
Defy Data Gravity – Rise above the infrastructure

Data-as-a-Service

Containerize Data

Cloudify Data Services

UNIVERSAL GLOBAL NSPACE
APPENDIX
Hammerspace Software Components

- 2 major components
- Linux-based
- Bare-metal
- Virtual machine deployment

Applications

SMB
NFS 3
pNFS 4.2

K8s Block PV
K8s File PV

METADATA SERVICES

DAS SAN

NAS OBJECT CLOUD

AUTONOMIC DATA SERVICES
Hammerspace Software

- Runs on Linux
- Bare Metal, VM, Container (Q3)