



TUESDAY MAY 1, 2018 09:00 - 18:00

BELLA CENTER

#opensds

Featuring Speakers From:

KPN, NTT Communications, Yahoo Japan, IBM, Netapp, Huawei, Western Digital, Google, Linbit

# Welcome and Introduction

Steven Tan  
OpenSDS TSC Chair  
VP & CTO Cloud Storage Solution, Huawei  
[@stevenphant](https://twitter.com/stevenphant)



# OPENSDS MINI SUMMIT SESSIONS

## DEVELOPER

- OpenSDS Aruba Release For Containers and OpenStack – *Rakesh Jain, IBM*
- Managing and Protecting Persistent Volumes for Kubernetes – *Xing Yang, Huawei*
- OpenSDS 101 – *Xing Yang & Sean McGinnis, Huawei*
- OpenSDS Interplay – *Howard Huang & Sean McGinnis, Huawei*

## END USER

- Data Mobility For Hybrid Cloud Transformation– *Kei Kusunoki, NTT Communications*
- Storage Design and Operations for Hyperscale Environment – *Yusuke Sato, Yahoo! Japan*
- Multi-Cloud Data Exchange - *Wim Jacobs, KPN*

## TECHNOLOGY

- Storage Intelligence for the Data Center – *Allen Samuels, Western Digital*
- What Is The Container Storage Interface (CSI) – *Saad Ali, Google*
- Reliable Storage for HA, DR, Clouds and Container – *Phillip Reisner, Linbit*
- Swordfish: Scalable Storage Management – *Alex McDonald, NetApp*



# OPENSDS MINI SUMMIT COPENHAGEN AGENDA

Venue: Bella Center, Meeting Room 6

Date: Tuesday May 1

09:00-09:30 *Breakfast Buffet*

09:30-09:50 Welcome and Introduction – Steven Tan, OpenSDS TSC Chair, Huawei

09:50-10:00 Guest Speaker – Dan Kohn, Executive Director, Cloud Native Computing Foundation

10:00-10:45 OpenSDS Aruba Release For OpenStack & Containers – Rakesh Jain, OpenSDS TSC Vice-Chair, IBM

10:45-11:15 Data Mobility For Hybrid Cloud Transformation – Kei Kusunoki, NTT Communications

11:15-12:00 OpenSDS 101: Introduction and Contribution Primer – Xing Yang & Sean McGinnis, Huawei

12:00-13:30 *Lunch Break (attendees on own)*

13:30-14:00 What Is The Container Storage Interface (CSI) – Saad Ali, Google

14:00-14:30 Reliable Storage for HA, DR, Clouds and Containers – Philip Reisner, Linbit

14:30-15:15 Managing and Protecting Persistent Volumes For Kubernetes – Xing Yang, Huawei

15:15-15:30 *Tea Break*

15:30-16:00 SNIA Swordfish: Scalable Storage Management – Alex McDonald, Chair SNIA CSTI, NetApp

16:00-16:30 Storage Design & Operations for Hyperscale Environment – Yusuke Sato, Yahoo Japan

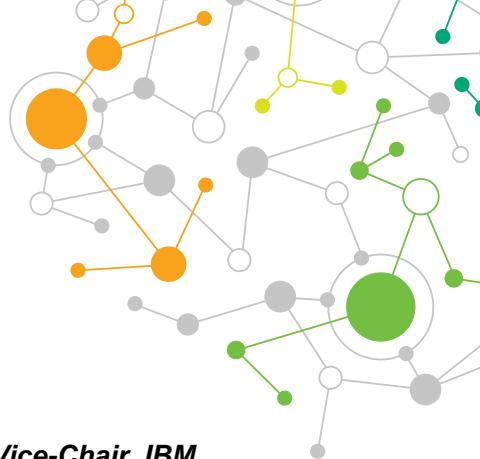
16:30-17:00 Storage Intelligence For The Data Center – Allen Samuels, Western Digital

17:00-17:30 The KPN Managed Hybrid Cloud DataExchange – Wim Jacobs, KPN

17:30-18:00 OpenSDS Interplay: Ecosystem and Open Discussions – Howard Huang & Sean McGinnis, Huawei

18:00-18:15 Closing – OpenSDS TSC

18:15-19:45 Happy Hour - Bites, Beer and Wine





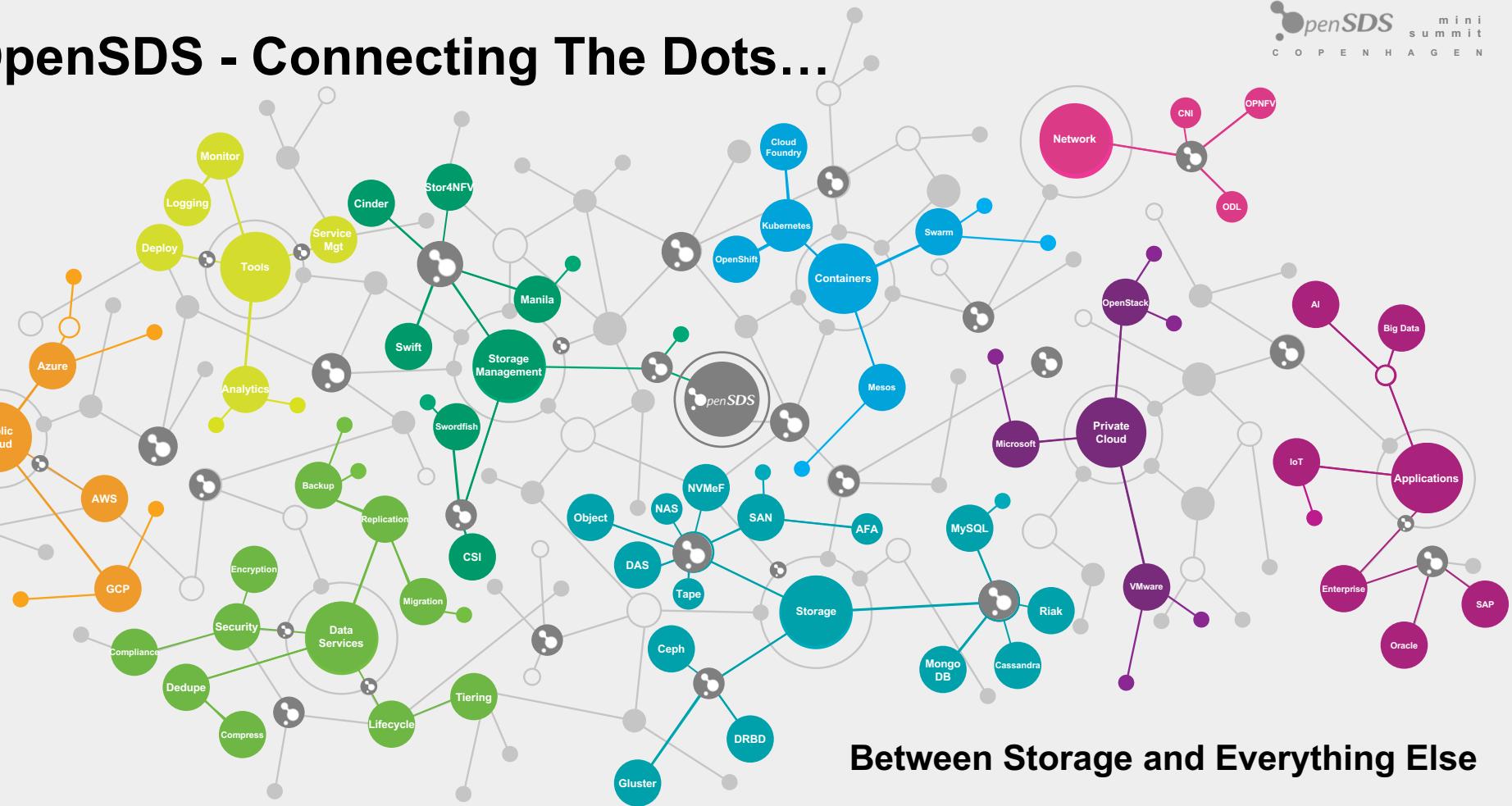
# The OpenSDS Project

Introduction and Update



**What is OpenSDS**

# OpenSDS - Connecting The Dots...



Between Storage and Everything Else

# The Core Projects

## SUSHI

The Northbound Plug-ins Project

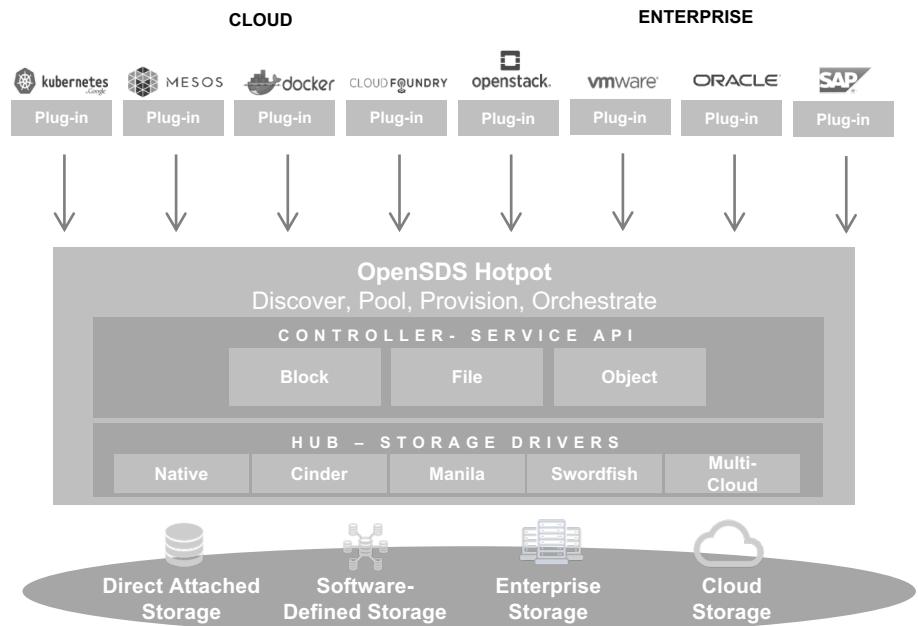
Common plug-ins to enable OpenSDS storage services for cloud and application frameworks



## HOTPOT

The Storage Controller Project

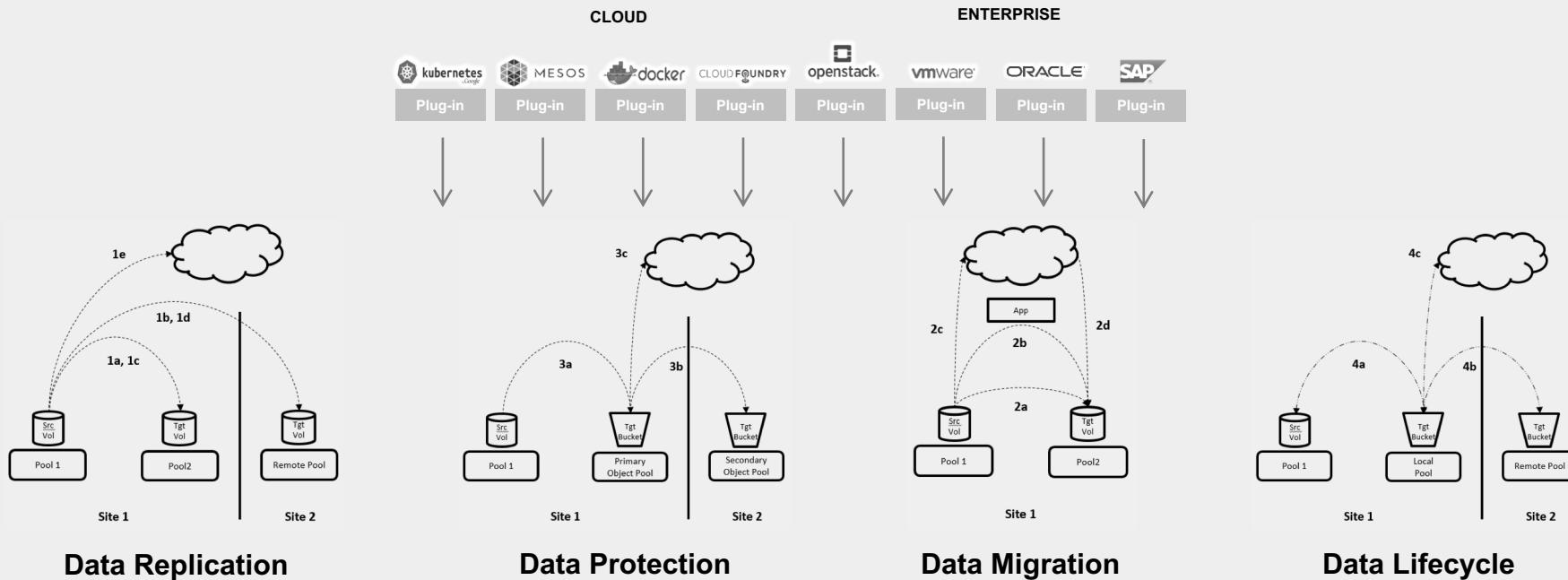
Single control for block, file, and object services across storage on premise and in clouds



# Beyond The Basics

# Storage Orchestration

Built-in advanced **automated storage and data services** that respond to any compute frameworks in a common way across traditional data centers, private and public clouds



**Data Replication**

**Data Protection**

**Data Migration**

**Data Lifecycle**

# Storage Intelligence

A standardize way to monitor the environment and its components, analyze the collected data using machine learning and AI, and **automatically tune the storage infrastructure** to optimize for performance, efficiency, and cost

Monitor



Metrics  
Metering  
Alerts  
Logs

Analyze



Root Cause Analysis  
Failure Prediction  
Performance Trends  
Capacity Planning

Optimize

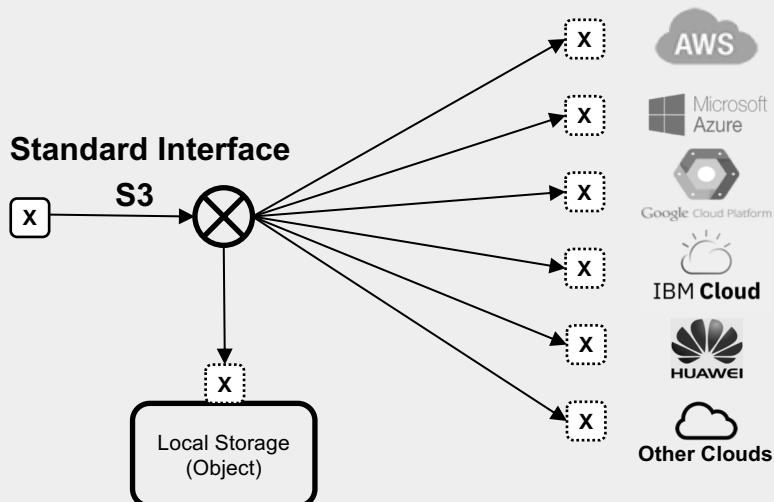


Capacity Optimization  
Performance Tuning  
Cost Management  
Energy Efficiency  
Load Balancing

Standardize API's For Monitoring, Analysis And Optimization

# Storage Multi-Cloud

**Policy-based data mobility** across private and public clouds, for availability, tiering, bursting, backup, archive and DR

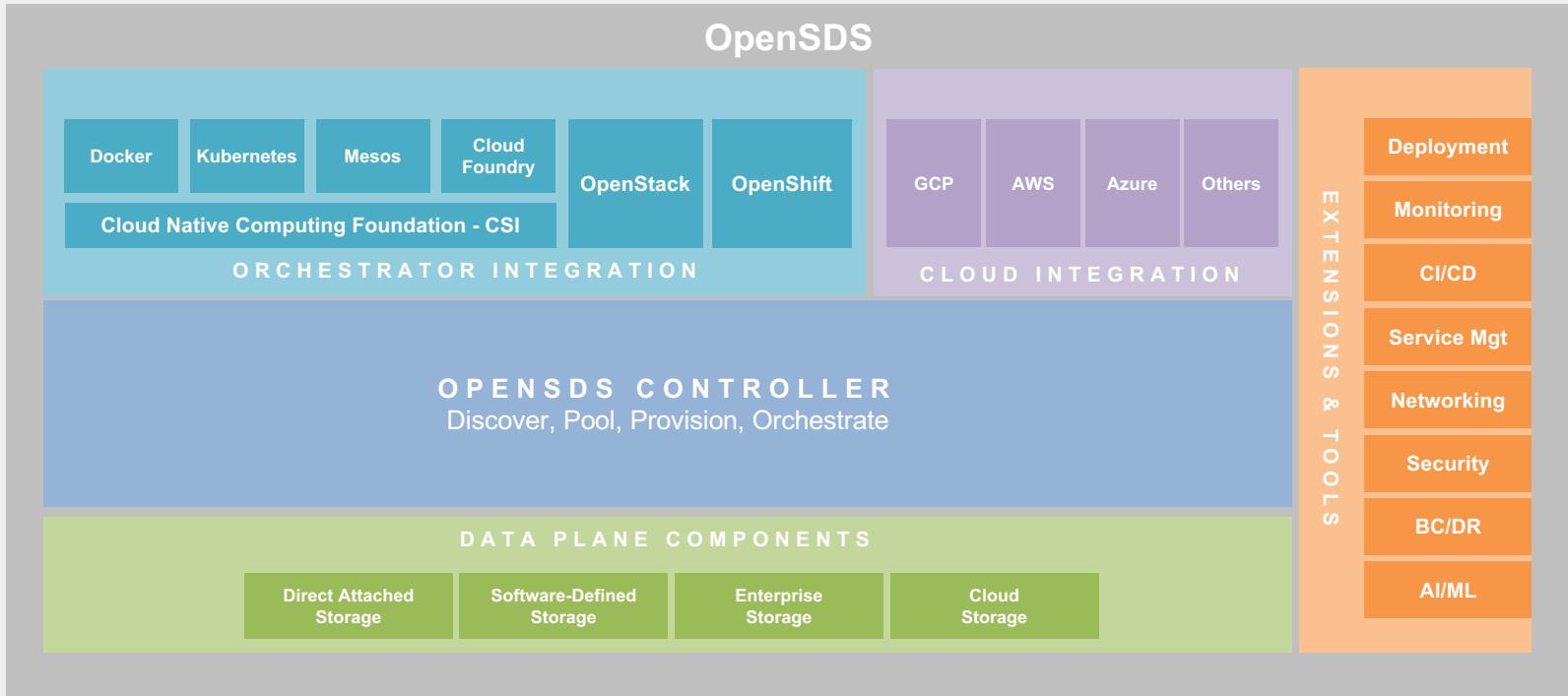


- Vol image, snapshot, file, object
- Policy-based placement
- Put object to multiple clouds at the same time
- Get object on demand
- Global search



# Run Applications Without Thinking About Storage

# Project Framework



# OpenSDS Roadmap v0.14

**2017H2**  
**ZEALAND**  
**Storage For Kubernetes**

- Kubernetes FlexVolume
- Vol CRUD
- Standalone Cinder Integration
- CSI Support
- Ceph, LVM

**2018H1**  
**ARUBA**  
**Storage Orchestration**

- OpenStack
- Replication Array-Based, Host-Based
- Dashboard
- Virtual Pools
- Storage Profiles
- NVMeoF preview
- Enumeration
- Block Storage
  - Ceph
  - LVM
  - IBM: XIV, Storwize, SVC
  - Huawei: Dorado

**2018H2**  
**BALI**  
**Storage Multi-Cloud**

- Data Migration Offline, Online\*
- Monitoring
- Multi-OpenStack
- S3 Object
- Multi-Cloud Control
- NVMeoF
- Storage Groups Snapshots, Replication
- CSI Mesos\*, Docker\*
- Swordfish Dell-EMC, NetApp

**2019H1**  
**CAPRI**  
**Storage Intelligence**

- Analytics
- Lifecycle
- Data Protection
- File Share

**2019H2++**  
**Performance**  
**Optimization**  
**Tiering**  
**Security**  
**Sharing**  
**Networking**  
**SCM**

<https://github.com/opensds>



# Governance

## Technical Steering Committee



**Steven Tan, Chairman**  
Huawei, VP & CTO Cloud Storage Solution



**Rakesh Jain, Vice-Chair**  
IBM, Research Engineer and Architect



**Allen Samuels**  
Western Digital, R&D Engineering Fellow



**Anjaneya "Reddy" Chagam**  
Intel, Chief SDS Architect



**Jay Bryant**  
Lenovo, Cloud Storage Lead

## End-User Advisory Committee



**Cosimo Rossetti**  
Vodafone, Lead Storage Architect



**Yusuke Sato**  
Yahoo Japan, Infrastructure Lead



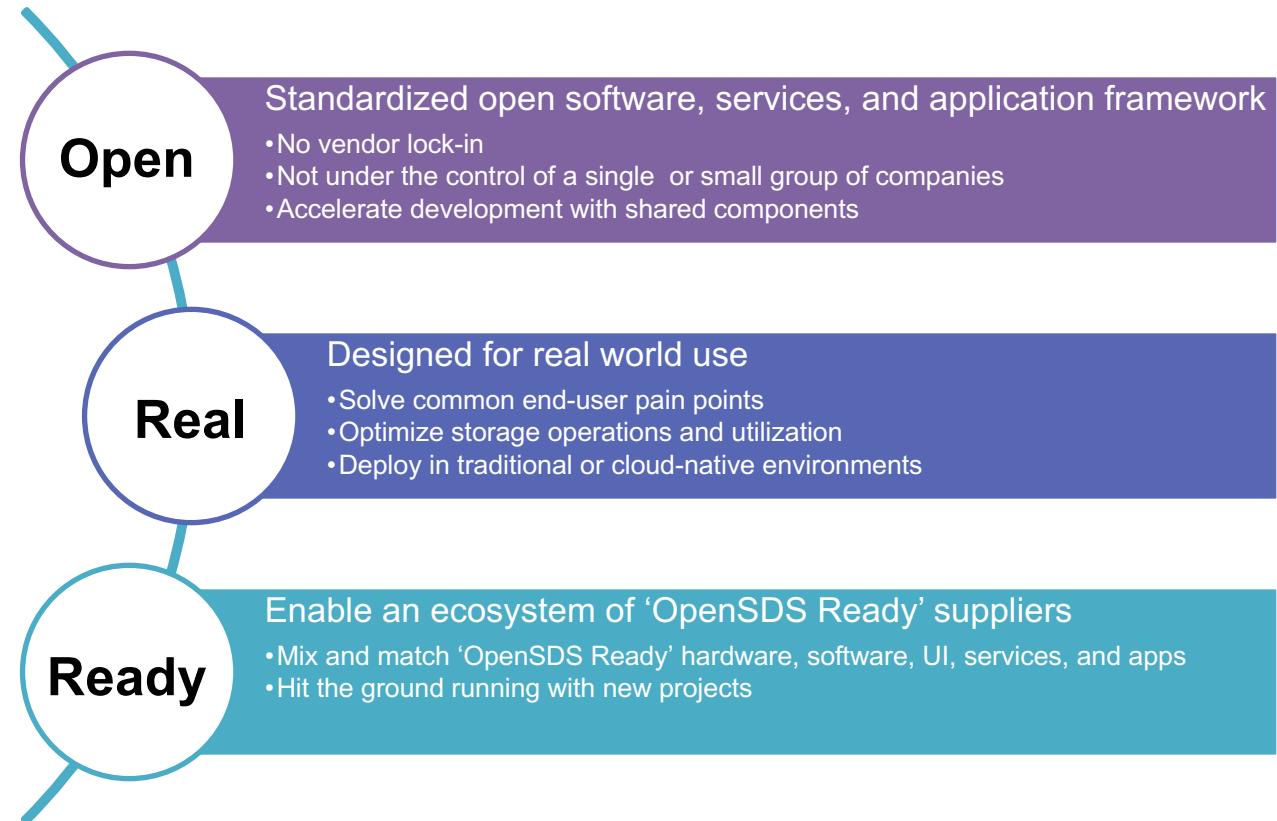
**Kei Kusunoki**  
NTT Communications, Storage Architect



**Yuji Yazawa**  
Toyota ITC, Group Lead



# Goals



# OpenSDS

## A Linux Foundation Project

An industry-wide open source project for software-defined storage management

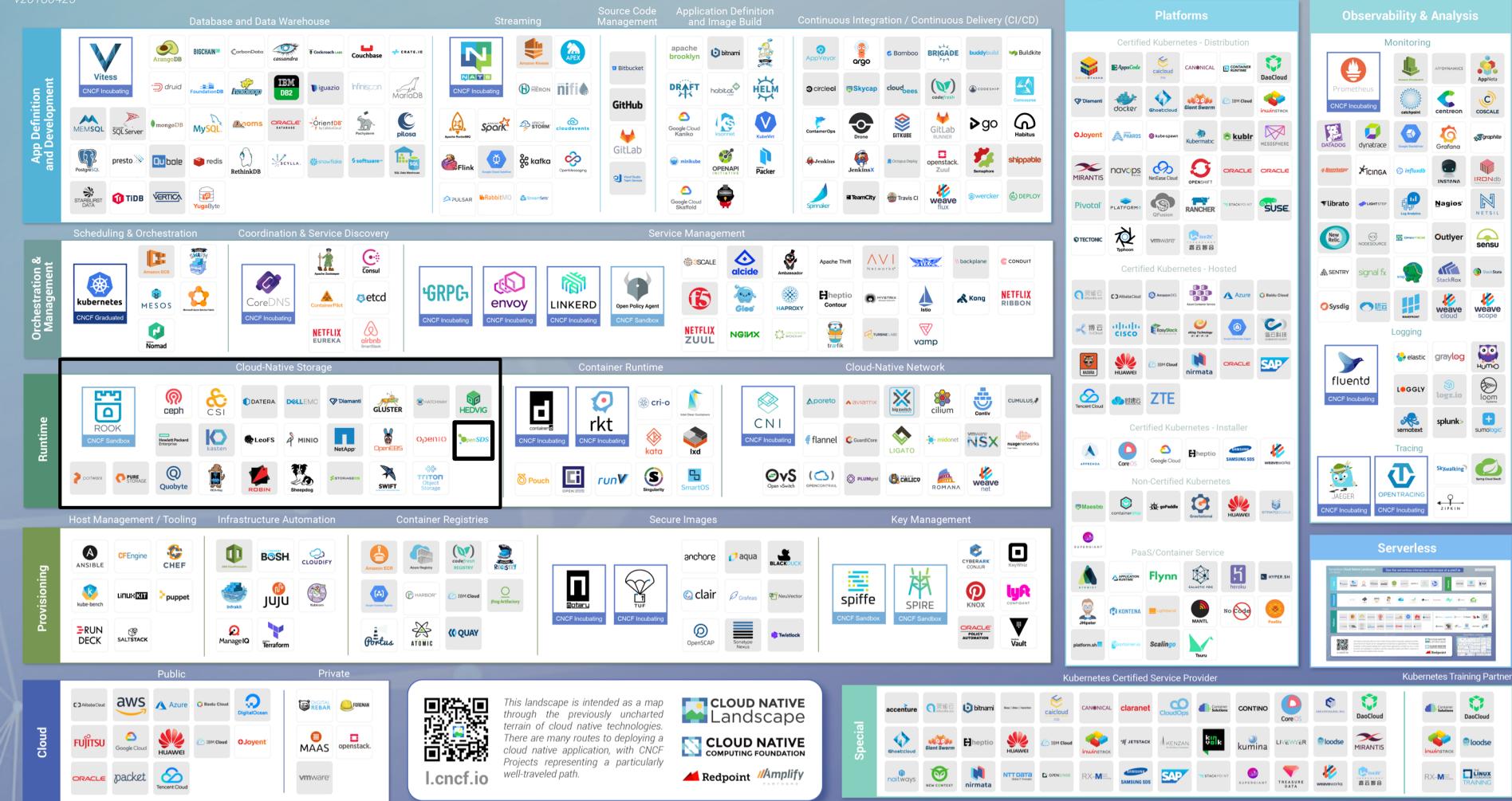


### OUR NEWEST MEMBER

**LINBIT**



## Cloud Native Landscape



# Thank You

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