



sodacon 2020

DATA CONNECTED

ZENKO: AN OPEN-SOURCE MULTI-CLOUD DATA CONTROLLER

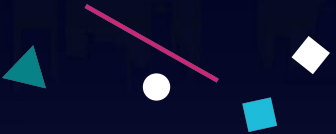
Paul Speciale, Chief Product Officer
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Scality, Inc.



TOPICS



- Zenko Overview
- Use-Cases
- Technology
- Conclusion



WHAT IS ZENKO?

Zenko is a Hybrid and Multi-Cloud Data Controller for Management of Active Workflows on Unstructured (File & Object) data

Apache 2.0 open-source project

- First published by Scality in 2017: <https://github.com/scality/Zenko>
- Embedded in several commercial offerings (Saagie Data Orchestrator, Fujifilm Object Archive, Nodeweaver, Scality XDM)

Zenko is independent of Scality's commercial product offerings

- Can be used with public cloud storage, 3rd party object stores & NAS



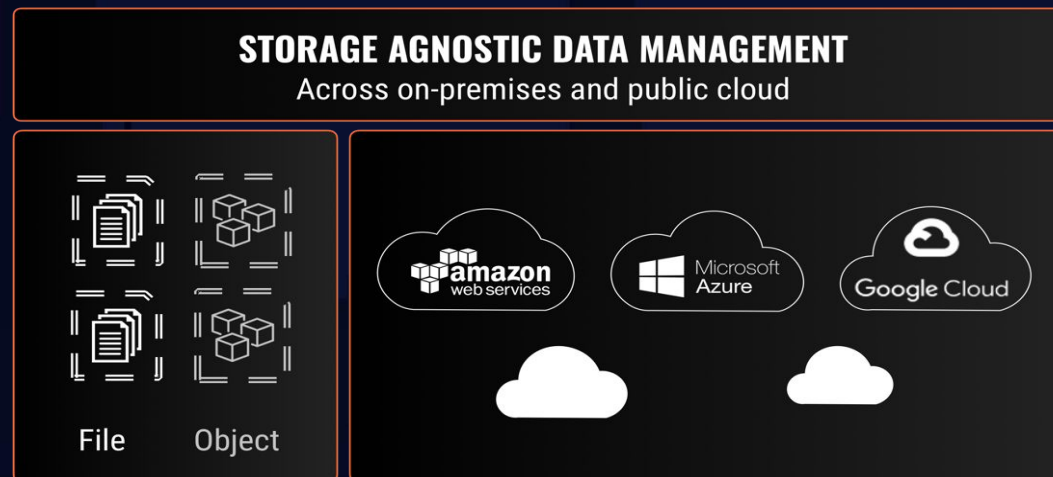
ZENKO FUNCTIONALITY

S3 API endpoint & namespace across on-premises storage & public clouds

API translation to supported back-ends (S3 & non-S3 targets such as Azure Blob)

Support for extended metadata (via S3 “x-amz-meta-” tags) & search

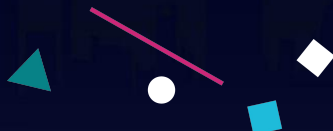
Support for extended Bucket “Locations” and data management policies across Locations: I-I and I-Many replication (CRR) & Lifecycle management (expiration & transition)



UNIFIED S3 NAMESPACE & NATIVE CLOUD DATA FORMAT



- Applications **write to single, industry standard interface** (Amazon S3 API) and **Zenko manages differences** in storage locations – no change in apps required to write to diverse targets
- Data is stored in **native format of storage location** and available to any external service



CLOUD DATA MOBILITY



Buckets have assigned “Locations” – extension of the AWS “region” location attribute

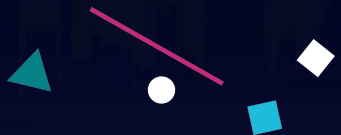
- Location is an endpoint address / bucket or container name

Replication Policies

- Any bucket can be configured with a CRR (Cross Region Replication) policy, as per S3 CRR API
- In the S3 API, CRR is I-I (source Bucket -> target Bucket)
- Zenko extends this to support multiple target Buckets for I-M CRR (supports multi-region and multi-cloud CRR)

Lifecycle Policies

- Any bucket can be configured with a Bucket Lifecycle policy, as per S3 API
- Support for the S3 Lifecycle “expiration” and “transition” rules
- In Zenko, transition applies “move” actions to the objects meeting the rule policies (e.g., move object from cloud A to cloud B)

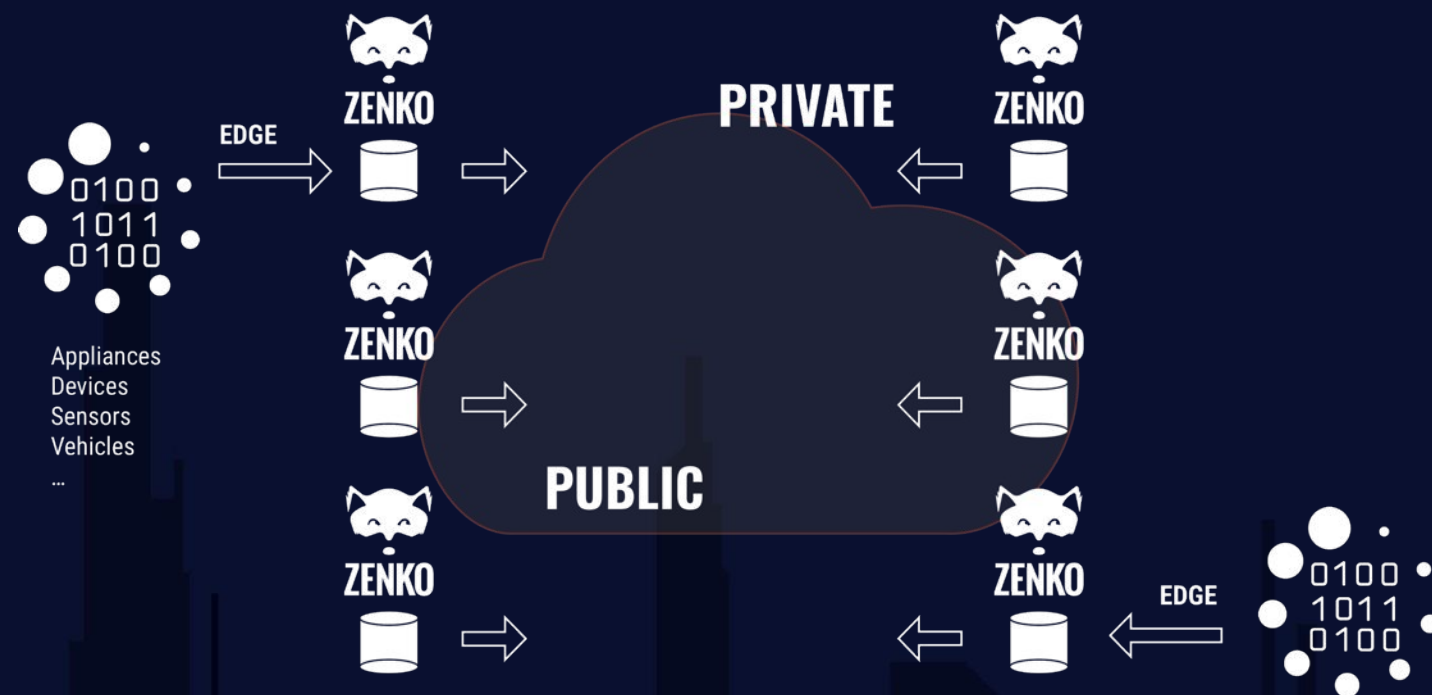


USE-CASES: CLOUD DISASTER RECOVERY (D/R)



- Store data in primary and secondary locations
- Monitor availability of primary location; failover to secondary location as needed
- Enables On Premises: Cloud and Cloud: Cloud DR/HA for Data

USE-CASES: IOT/EDGE DATA MOBILITY



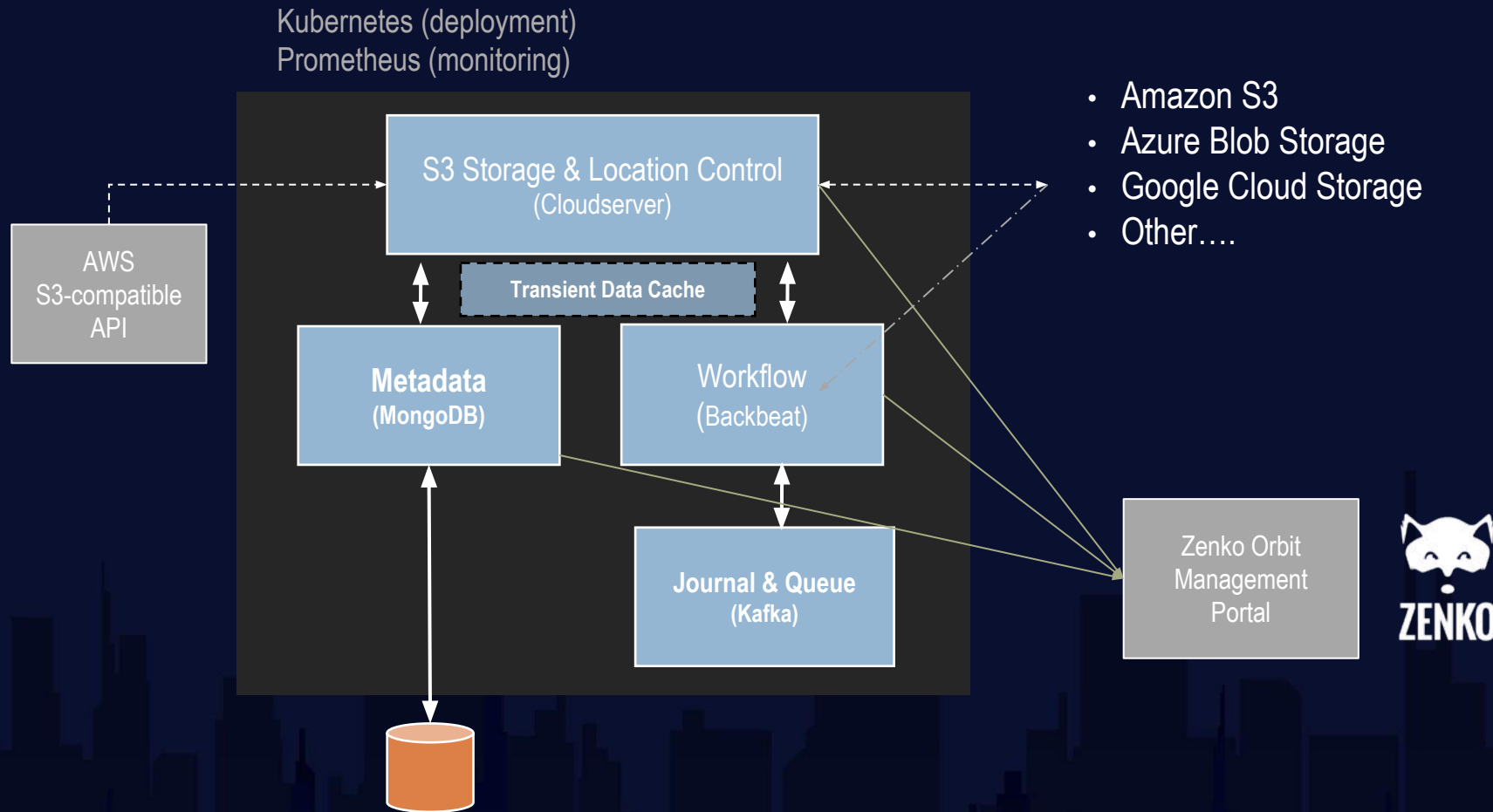
- Capture edge data in Zenko local cache from devices, sensors, vehicles, appliances, ...
- Analyze at edge or replicate to central location on on-premises storage or public cloud
- Enable artificial intelligence, machine learning and automation at the edge and at the core

USE-CASES: CLOUD DATA BURSTING



- For media workflows (broadcasters, studios, post-production houses) - replicate data to cloud services (CDN, compute, transcoding, etc.)
- For enterprises - replicate data to cloud for compute or analytics processing

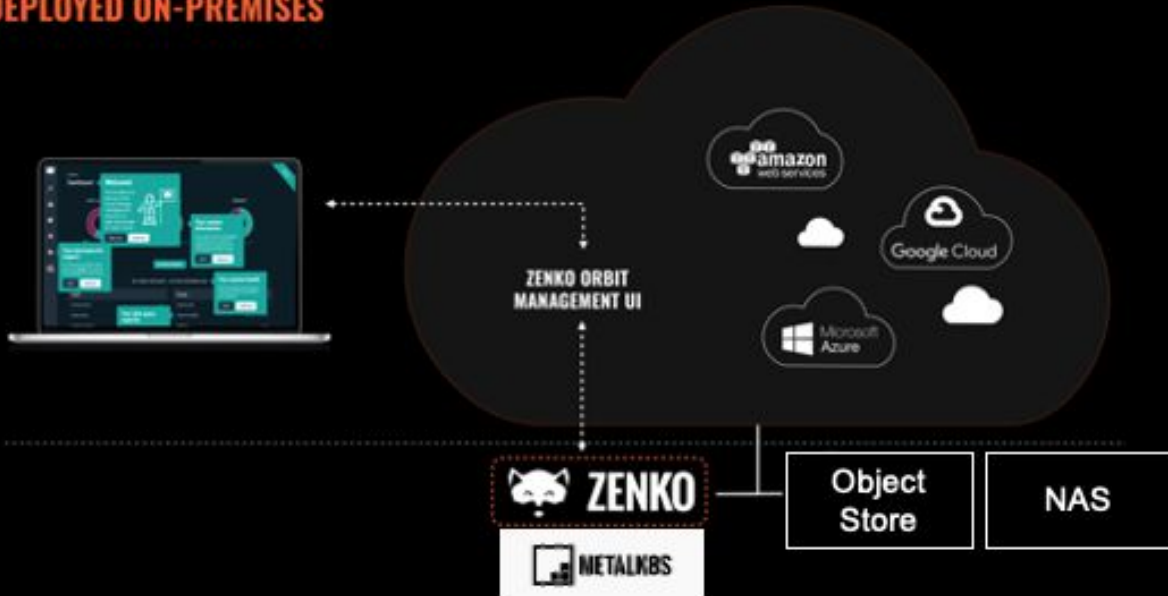
ZENKO HIGH-LEVEL ARCHITECTURE



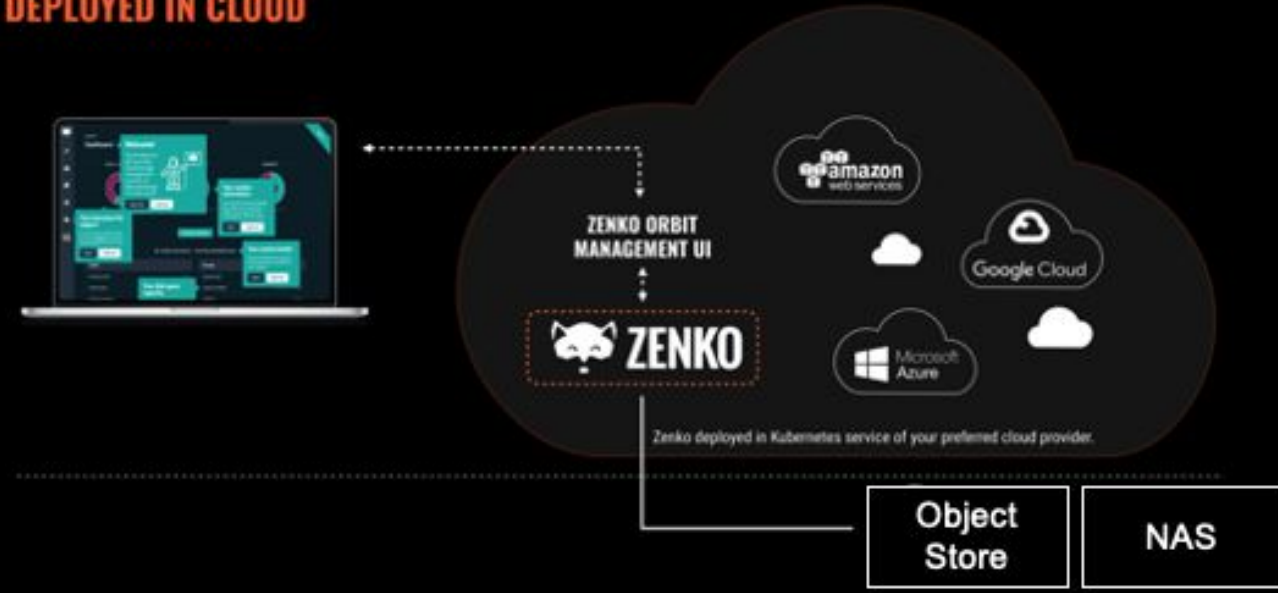
DEPLOY ANYWHERE ARCHITECTURE



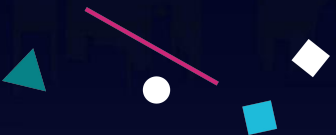
DEPLOYED ON-PREMISES



DEPLOYED IN CLOUD



- On-premises: deployment on Kubernetes (bare-metal or VM)
- In-cloud: Kubernetes services (EKS, AKS, GKE)



NAMESPACE CONSISTENCY MODELS

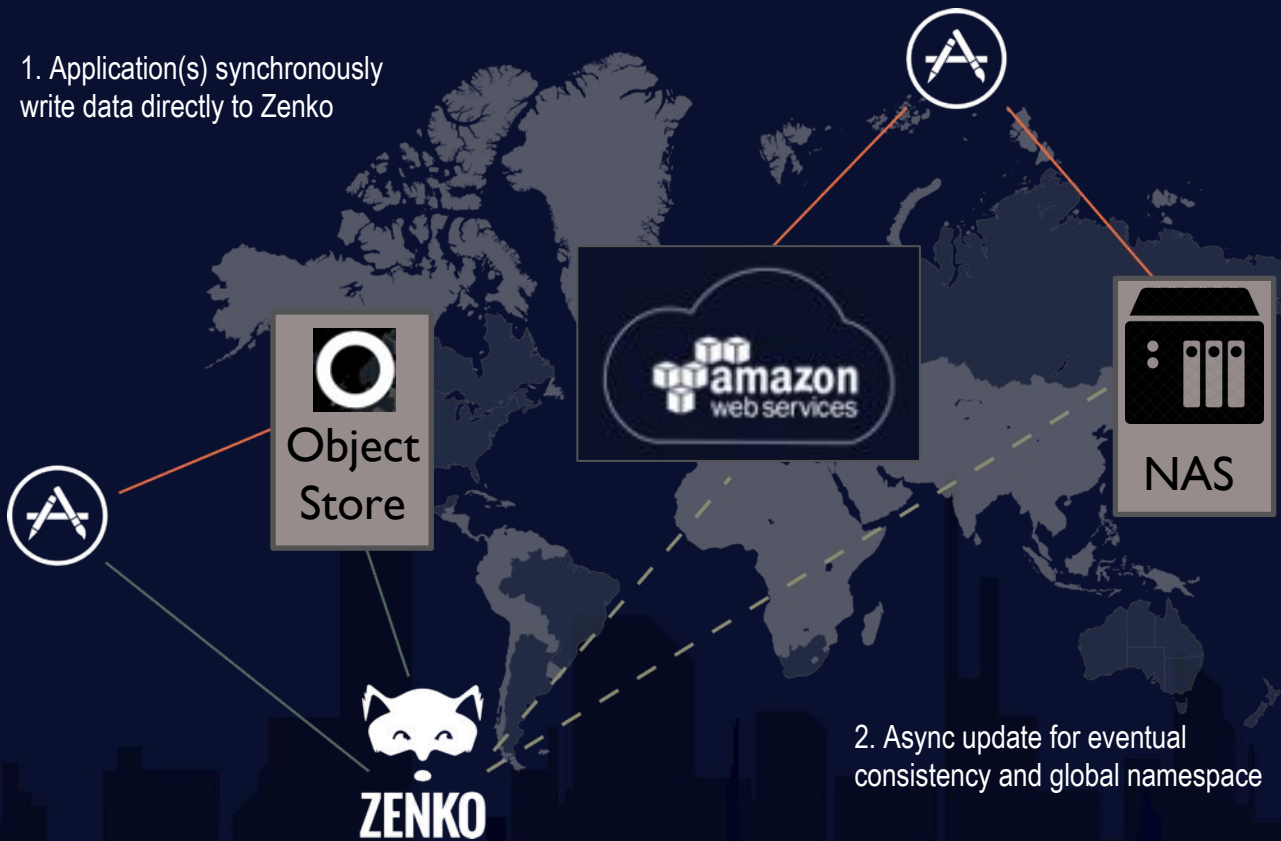
Two Models of Namespace Consistency

Strong Consistency

- via inline updates from app to Zenko S3 endpoint

Eventual Consistency

- Application writes to cloud or external storage target
- asynchronous notification from cloud or external storage to Zenko
- Supported today on AWS, Scality RING and NAS (via simple dir scans)



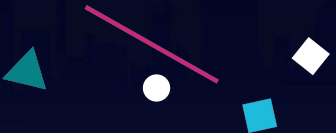
MORE INFORMATION ON ZENKO



www.zenko.io

Zenko Community: <https://www.zenko.io/community/>

Github: <https://github.com/scality/Zenko>





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