OUR JOURNEY TO THE MULTI-CLOUD

Andy Sen
THE CLOUD IS COOOL!
REALITY MUCH?

- **Maintenance**
  - Licensing
  - Day 1 Activities
  - Reliability
  - Versioning
  - Scalability
  - Monitoring
  - Security
  - Availability
  - Compliance
  - Duplication
  - Portability
  - Vendor Lock In
  - Standardization
  - Maintainability
  - Consistency

- **Workload**
  - Team A
  - Cloud A
  - Cloud B

- **Platforms**
  - On-premise
  - Cloud A
  - Cloud B
CONTAINERIZE EVERYTHING!

CONTAINERS, CONTAINERS

EVERYWHERE
AND WE SEE...

- **On-premise**
  - Team A
  - Team B
  - Team C
  - Workload

- **Cloud A**
  - Security
  - Scalability
  - Reliability
  - Compliance
  - Availability
  - Day 0 Activities
  - Underutilization
  - Standardization
  - Vendor Lock In
  - Maintainability
  - Cost
  - Consistency

- **Cloud B**
  - Maintenance
    - Licensing
    - Day 1 Activities
    - Reliability
    - Versioning
    - Scalability
    - Monitoring
    - Availability
    - Duplication
    - Portability
    - Standardization
    - Cost
    - Consistency
GET ‘EM CONTAINERS MOVIN’

- Secrets/Config Management
- Load Balancing
- Service Discovery
- Self Healing
- Auto Scaling

Container Orchestration
**SO WHAT’S INSIDE?**

- **Namespace Isolation**: (prevent access from other namespaces)
- **Network Policy (app = demo)**
- **Pod Security Policy**: (Disallow Privileged)
  - **NS 2**

**Node**

**Service**

- **app = test**
  - role = api
- **app = demo**
  - role = ui
- **app = demo**
  - role = api

**privileged access**
WHICH RESULTS IN...

On-premise

Cloud A

Cloud B

Team A

Team B

Team C

Maintenance

Licenseing

Day 1 Activities

Reliability

Versioning

Security

Scalability

Compliance

Availability

Duplication

Day 0 Activities

Portability

Vendor Lock In

Standardization

Maintainability

Underutilization

Cost

Consistency

Day 1 Activities

Monitoring

Versioning

Duplication

Consistency

Portability

Standardization

Maintainability

Underutilization

Cost

Consistency
LET'S FIGURE OUT SECURITY

Users + MFA

VPN

Relies on LDAP for auth

kubelet

kubectl

API Server

Namespace A

B

Pod Pod Pod

Pod Pod Pod

Relies on LDAP for auth

LDAP Lightweight Directory Access Protocol

RBAC

Single Sign On

MFA

Network Isolation

VPN

Relies on LDAP for auth

MFA

VPN

Relies on LDAP for auth

VPN
ITERATION 3...

Team A
Team B
Team C

On-premise

Cloud A
Cloud B

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Day 0 Activities
Security
- Compliance
- Availability

Day 1 Activities
- Security
- Availability

Maintenance
- Team A
- Team B
- Team C

Licensing
Reliability
Versioning
Scalability
Monitoring
Availability
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Cost
Consistency
A CLOUD ADAPTER

Configuration as a first class citizen

Cloud Adapter

Instances
Policies
DNS
LB
Object Storage
SQL
Key Mgmt

Cloud A
Cloud B

Based on Configuration, appropriate provider is invoked to provision resources.

Translates configuration into cloud resources (Cloud Agnostic)
AND THEN WE SEE…

Cloud A

Cloud B

Cloud Adapter

On-premise

Team A

Team B

Team C

workload

workload

workload

workload

workload

Day 1 Activities

Day 0 Activities

Maintenance

Licensing

Reliability

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Day 0 Activities

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VIRTUALIZE YOUR ON-PREM

Traditional Infrastructure

Compute
Network
Storage

Management Layer
Virtualized Compute
Virtualized Network
Virtualized Storage

On the way to Public Cloud!
GIVING US...

Team A

Cloud Adapter

Private Cloud

workload

Team B

Cloud A

Cloud B

workload

workload

workload

workload

Maintenance

Licensing

Day 1 Activities

Reliability

Versioning

Security

Availability

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Underutilization

Consistency
THE FINAL VIEW

Self Service Portal  APIs

Management Portal

Security

Hybrid Cloud

Private Cloud

Network

Cloud A

Cloud B
THANK YOU
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