OCP SUMMIT

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San Jose, CA

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PROJECT GREENFIELD: Building the NextGen Datacenter at Adobe

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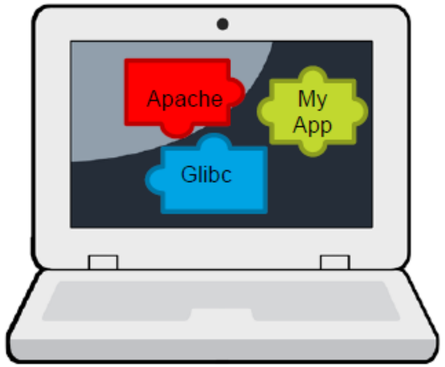
The Ideal World

Idea

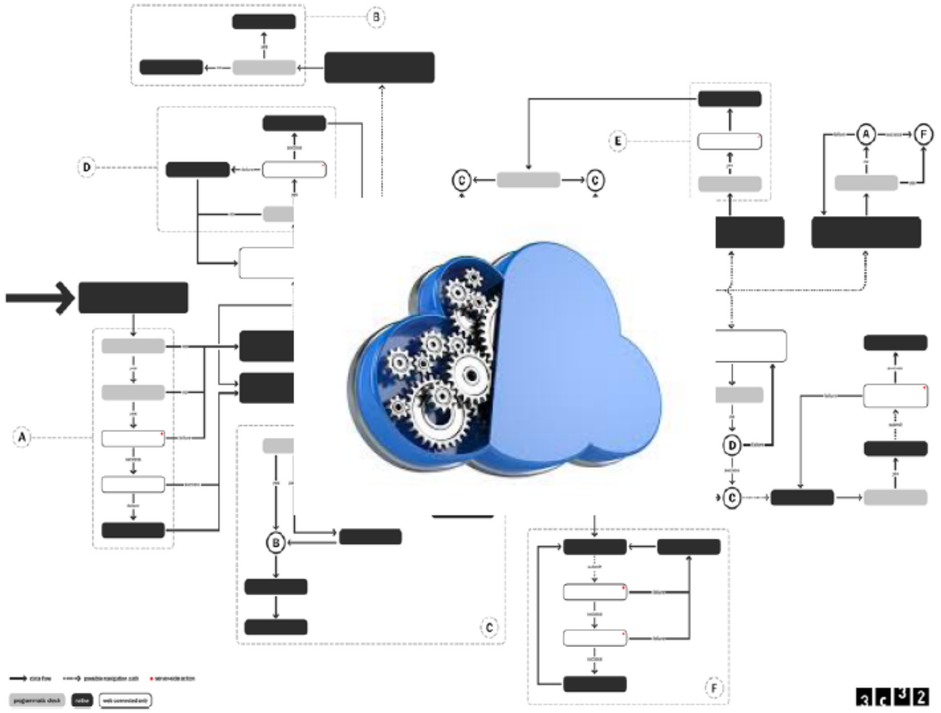


Code

Cash

The Harsh Reality

Idea



Current Datacenter/Network Process Inefficiencies: **The Network**

Yesteryear network design:

- Inefficient use of resources
- Network model designed for core/dist/access model.
- Doesn’t leave room high speed data transfer within datacenter
- Bigger boxes are expensive (and they don’t necessarily mean better)

Network design evolution

- Each datacenter has too many quirks which impacts automation
- More protocols = More complexity
- Very expensive to uplift older networks
- Multivendor is OK as long as things are tied in correctly

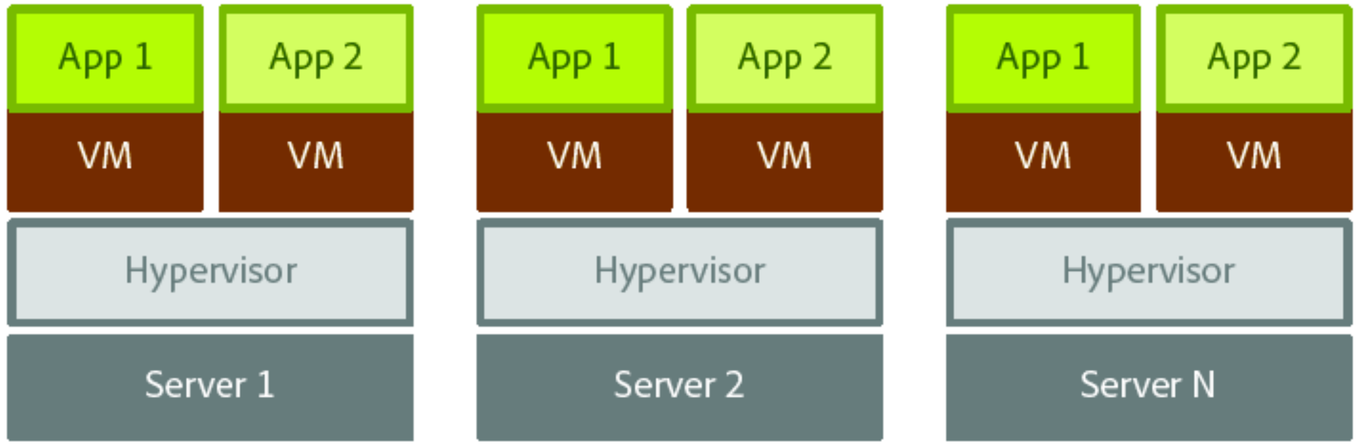
Current Datacenter/Network Process Inefficiencies: The Servers

For the application guys

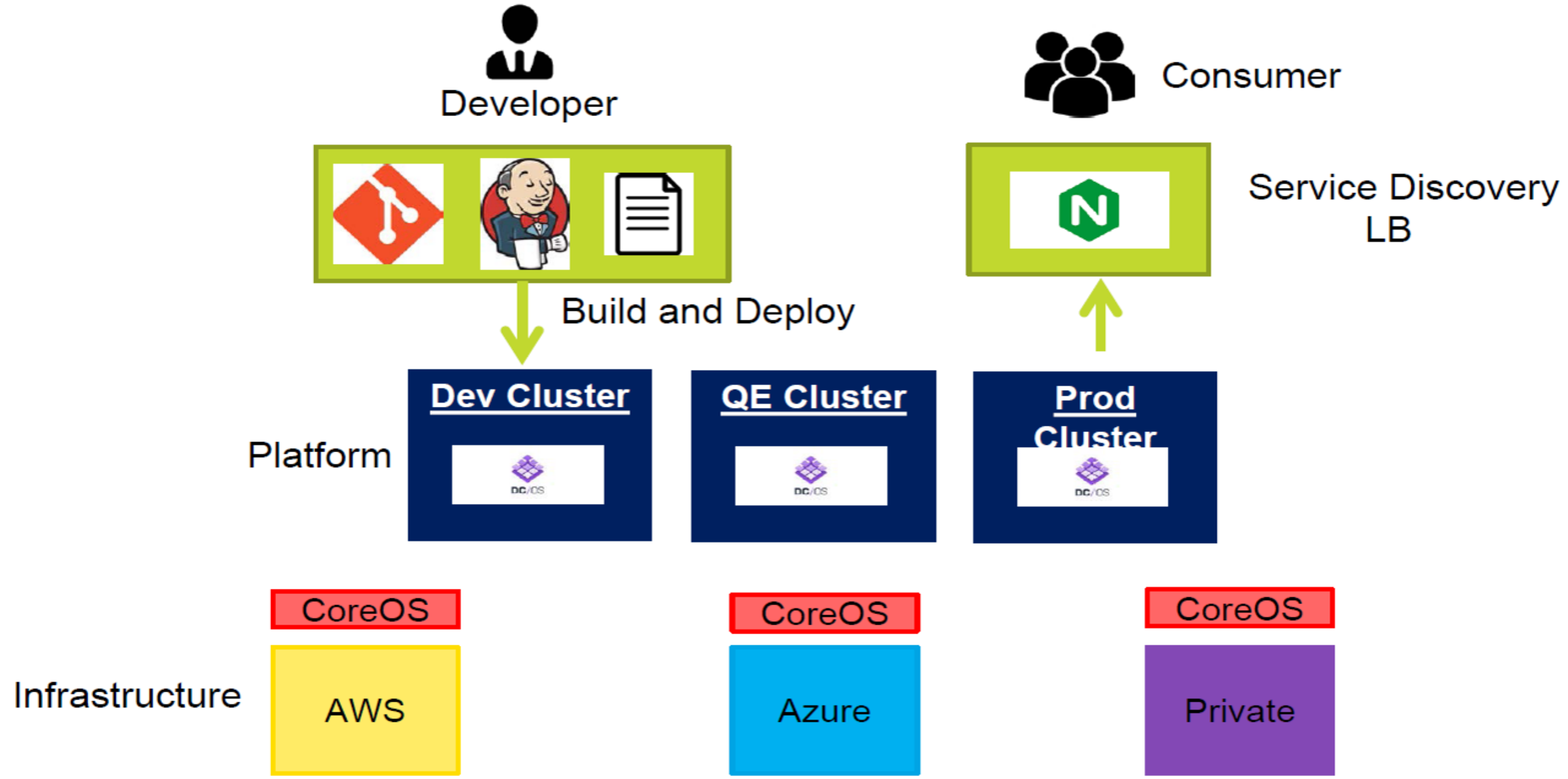
- Inefficient resource allocations
- Server underutilization
- Should not be in charge of resource aquisition

For the datacenter guys

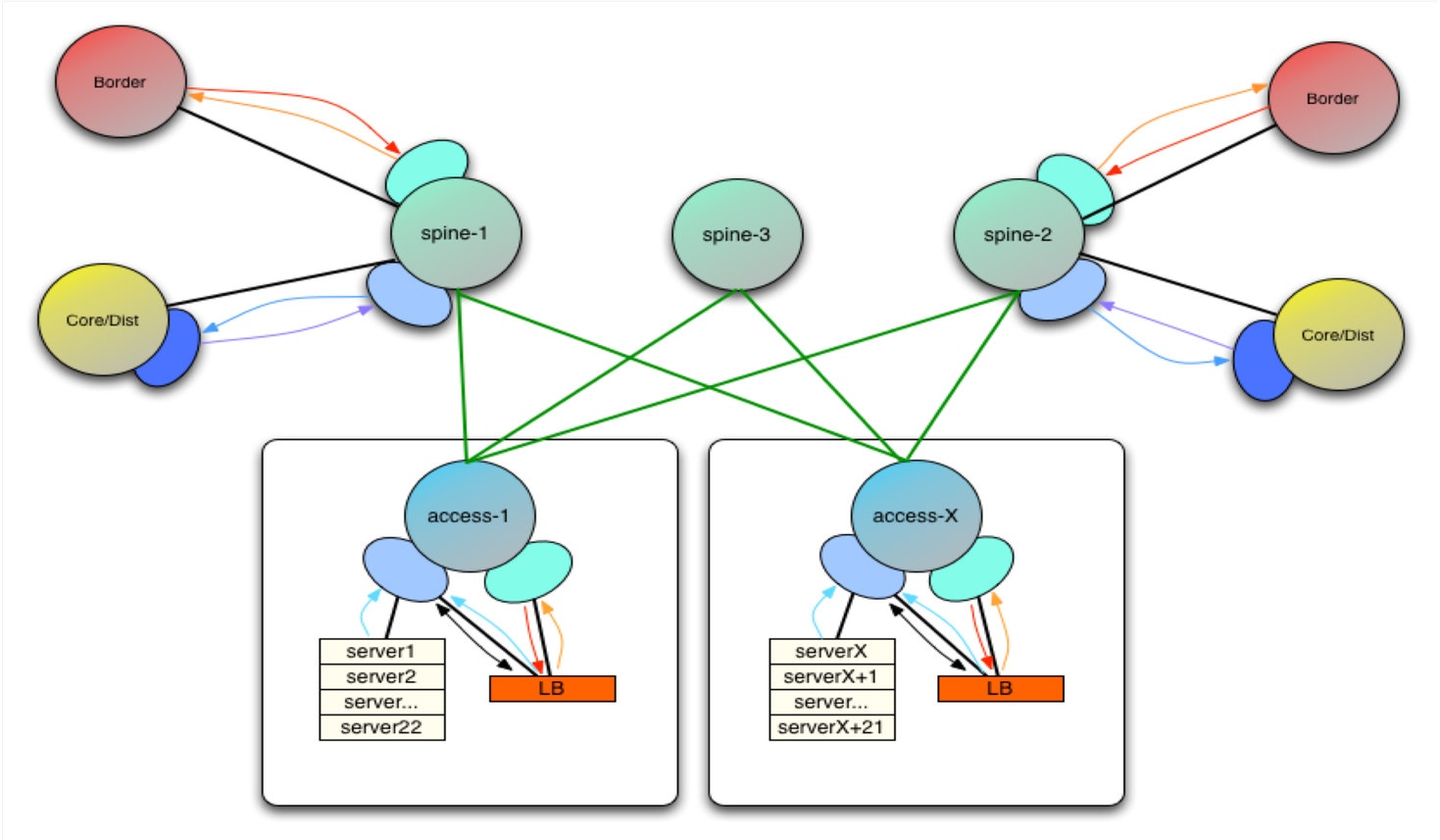
- Larger spare parts depo
- Part replacement gets very expensive at scale
- At the mercy of the operators



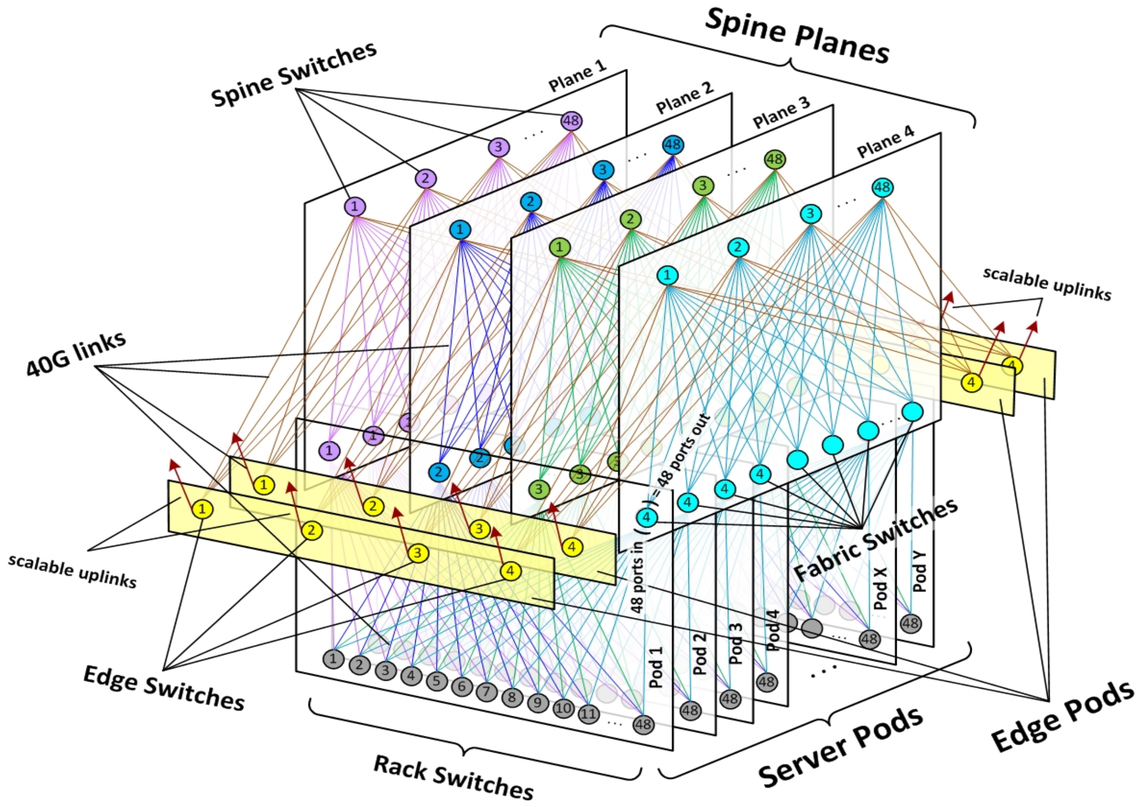
Project Ethos:
and the evolved application



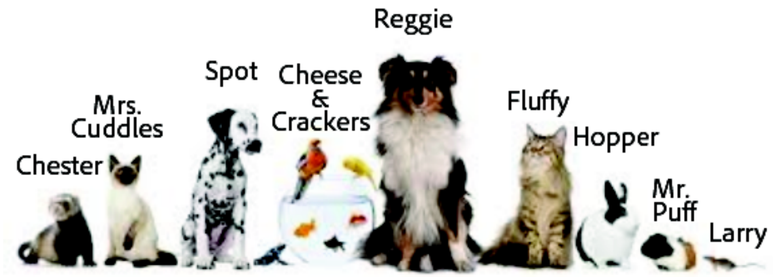
Project Greenfield:
The Network Evolved

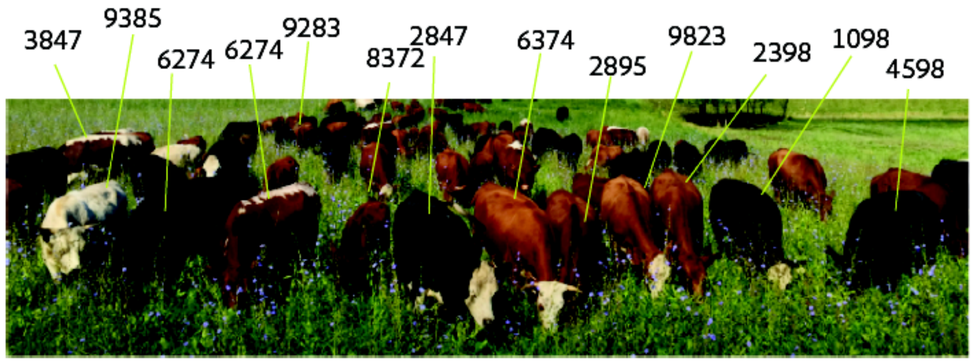


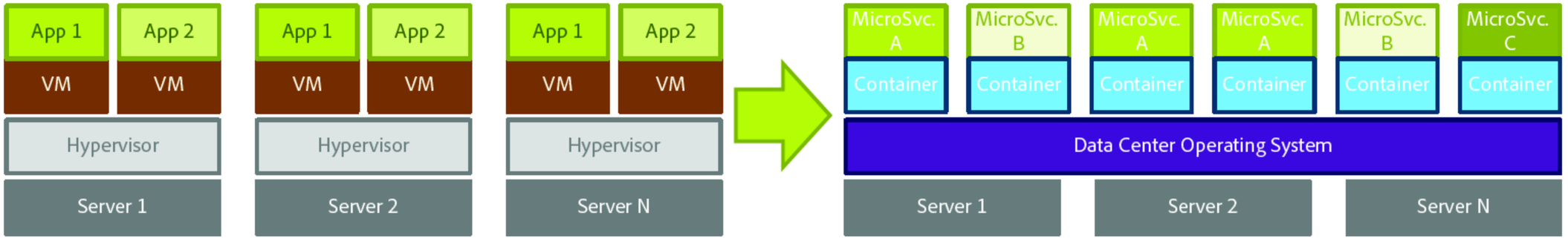
Here's to hoping…



The Servers Evolved







HOW DID WE GET THERE AND WHAT DID WE LEARN?

Evaluation Criteria

Compute
- Whitebox machines
- Simple – 1U, One power, IPMI, JBOD
- Cost
- Cattle not pets
- One or two models not forty
- Roll in racks

Storage
- Same whitebox machines
- Block, Object and HDFS
- Cattle not pets
- No SAN or FC, Network and Linux

Network
- CLOS Architecture
- L3 BGP to host
- Calico
- Linux switches
- Cattle not pets
- No direct management

BROADCOM

Mellanox TECHNOLOGIES

DELL

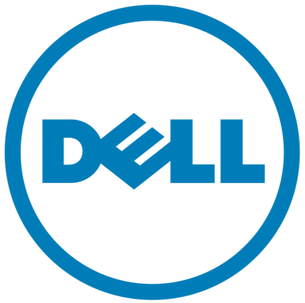
ScaleIO

HITACHI

snaproute

CUMULUS

Evaluation Results



* The Edge-Core models used were: AS-7712-32X for spine / AS-5712-54X for access / AS4610-54T for management

Possibilties with Cumulus

- ZTP Trigger Jenkins Pipeline
- KPI (and additional) metrics via Prometheus exporters (It's Linux!)
- Network OS/Config versioning consistency validation metrics
- Route Table / Peering metrics

Compute Cost Comparisons
DC vs The Public Cloud

Datacenter	AWS	Azure
22%	76%	100%

- Making the assumption that 1 unit of spend in Azure equals 100% of that unit value. The percentages are based off that value.
- The obvious choice is the datacenter!

Next Steps

Annual re-assessment and re-evaluation

- Are the network switch needs met?
- Are the network operating system needs met?
- Are the server needs met?
- Continue to automate the infrastructure

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