Successful IaaS part 2

The underlying Infrastructure DOES matter

Erwin uit de Bos

Datacenter Specialist

Version: 30-mrt-16

Introduction

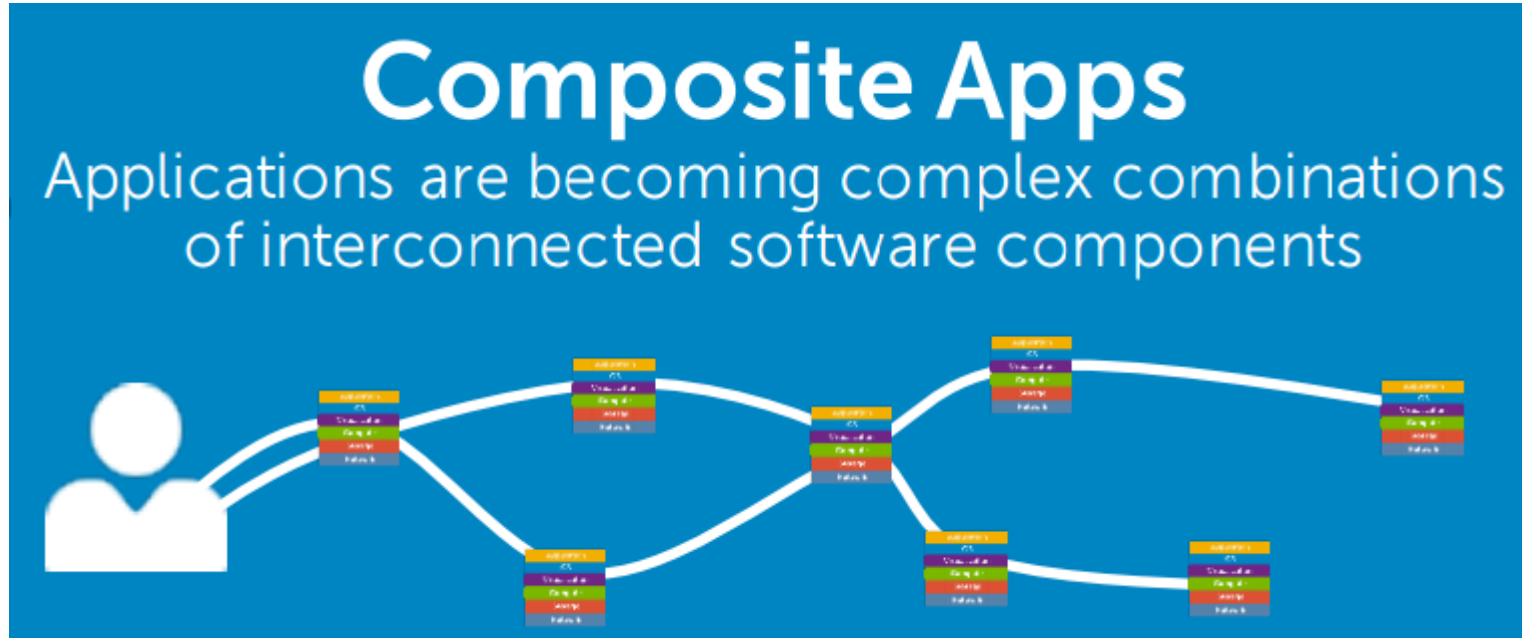

Karima van Heiningen
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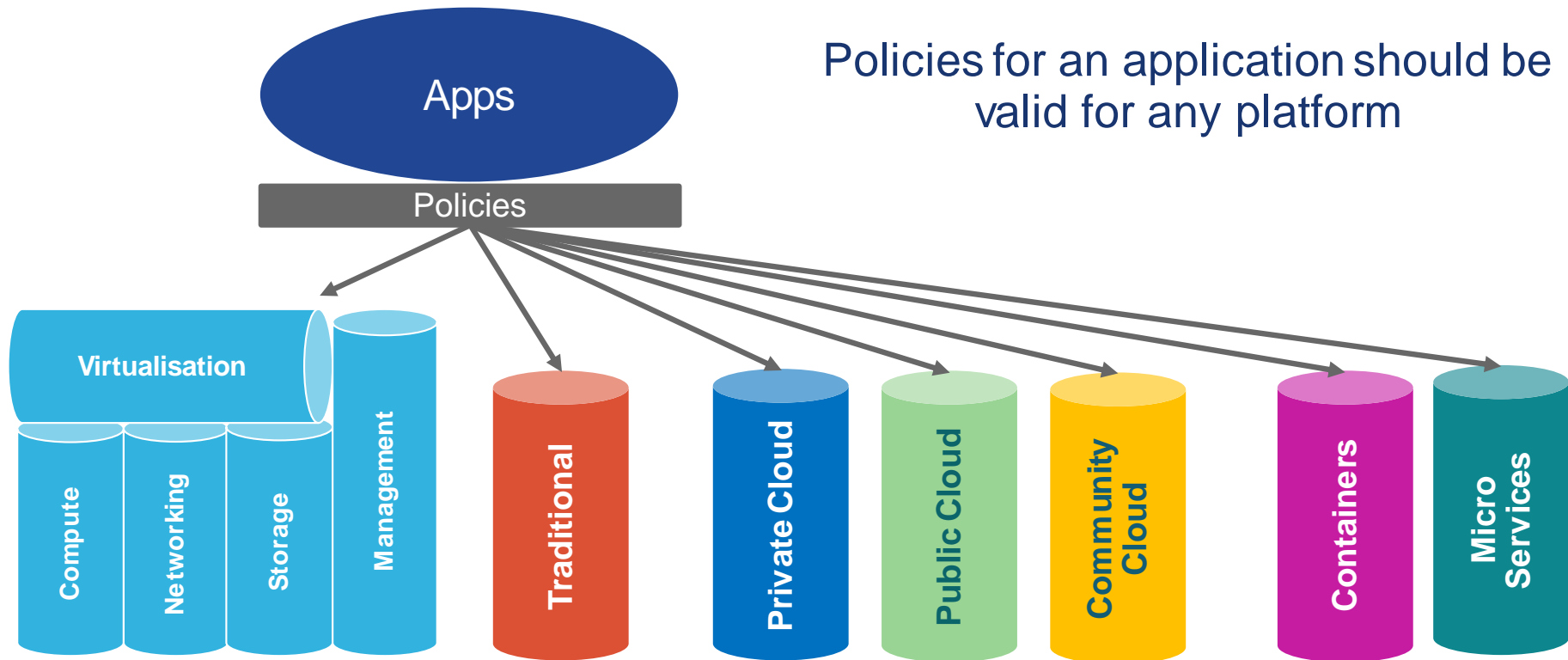Datacenter Specialist

SURF Netherlands Account Team

Short Recap of Part 1

Complexity of deploying applications in IaaS

Consistent Policies across deployment platforms

Apps

Policies for an application should be valid for any platform

Policies

Virtualisation

Compute

Networking

Storage

Management

Traditional

Private Cloud

Public Cloud

Community Cloud

Containers

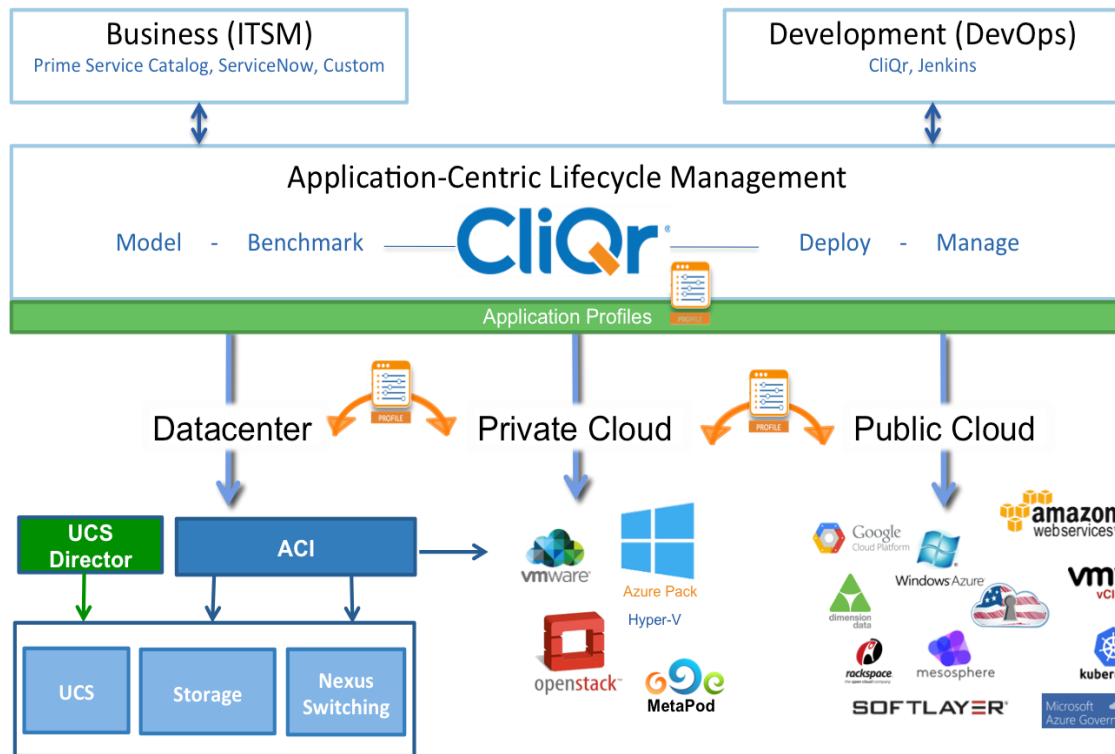Micro Services

End-to-end Orchestration
that understands policies

Self Service Front End

Service Orchestration to any destination platform

Deployment Automation

Destination Platform

Business (ITSM)
Prime Service Catalog, ServiceNow, Custom

Development (DevOps)
CliQr, Jenkins

Application-Centric Lifecycle Management

Model - Benchmark   **CliQr®**   Deploy - Manage

Application Profiles

Datacenter   Private Cloud   Public Cloud

UCS Director   **ACI**

UCS   **Storage**   **Nexus Switching**

vmware
Azure Pack
Hyper-V
openstack
MetaPod

Google Cloud Platform
Windows Azure
dimension data
rackspace   mesosphere
SOFTLAYER
Microsoft Azure Government

amazon webservices™
vmware vCloud Air
kubernetes

CISCO

Free Workshop to determine current and desired state
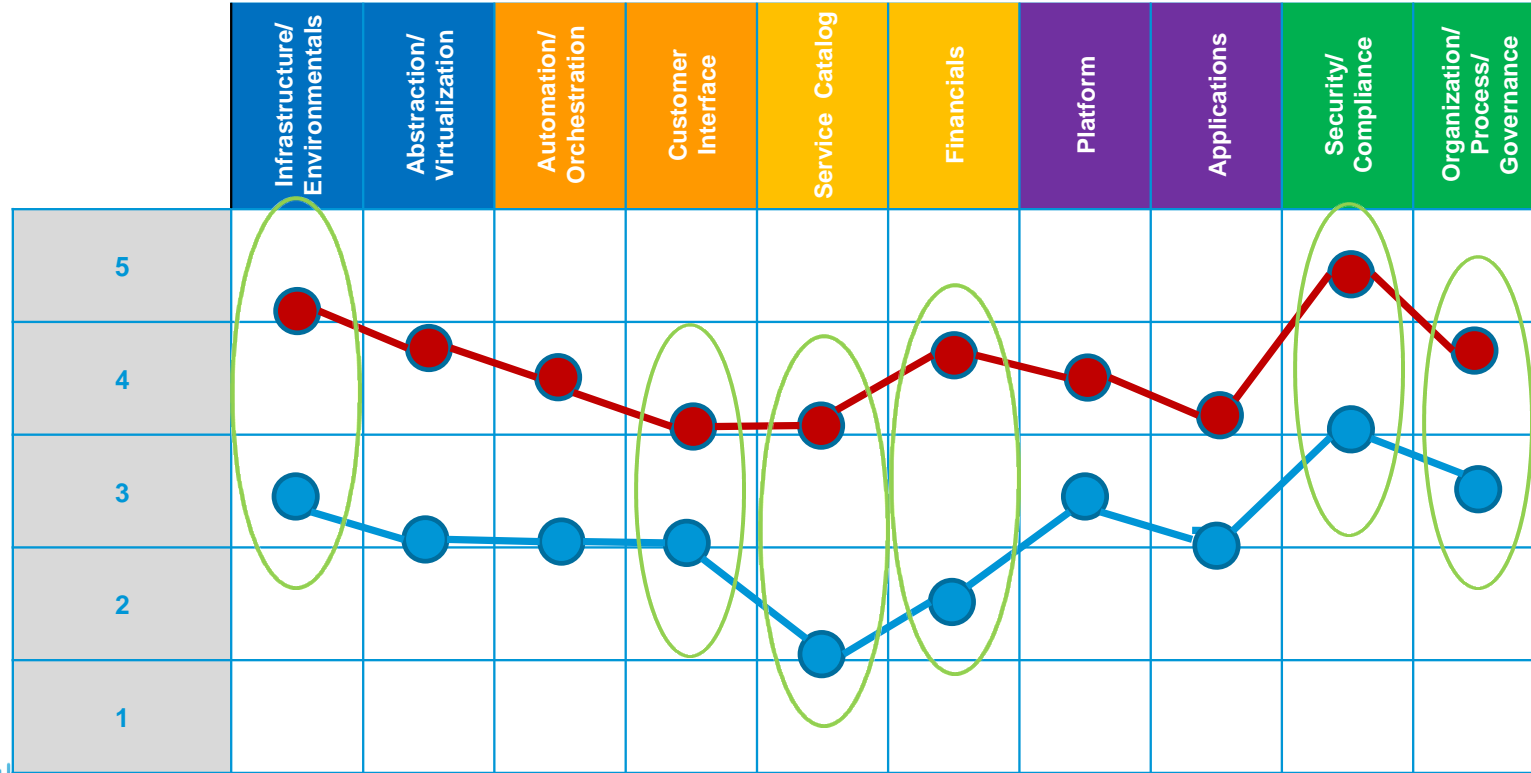
Summary of part 1

- Application Dependancies are the cause of complexity in IT Infrastructure

- Using Policies in your datacenter allows IT personnel to focus on exceptions and automating everything else

- Cisco provides technology that supports using IaaS for the Policy Defined Datacenter

- Cisco and her partners provide the comprehensive services to help customers succesfully adopt and migrate to IaaS providers

- Cisco provides solutions that help IaaS Providers create services that better match the needs of their customers
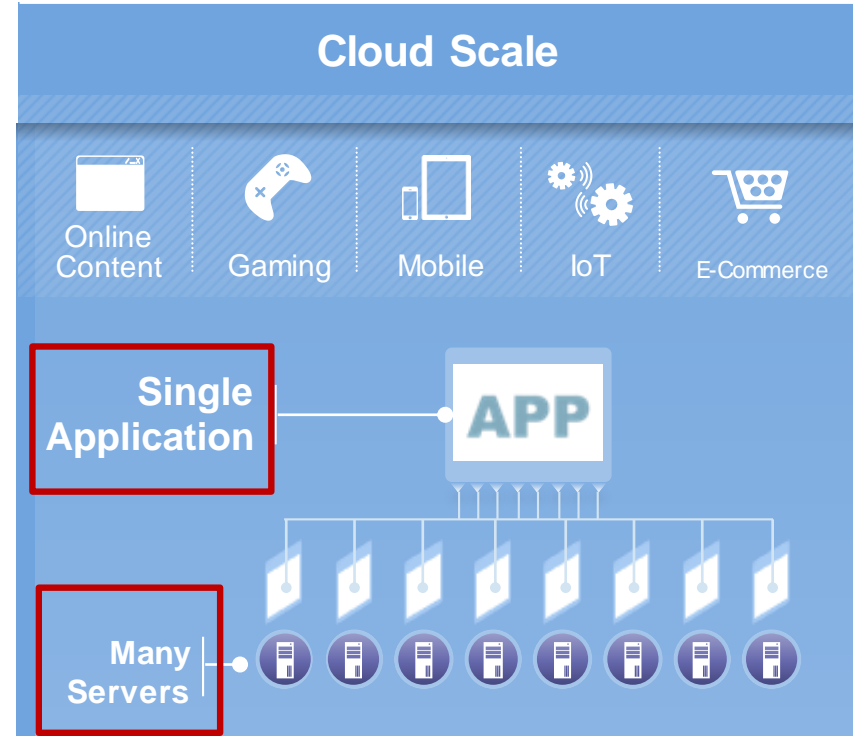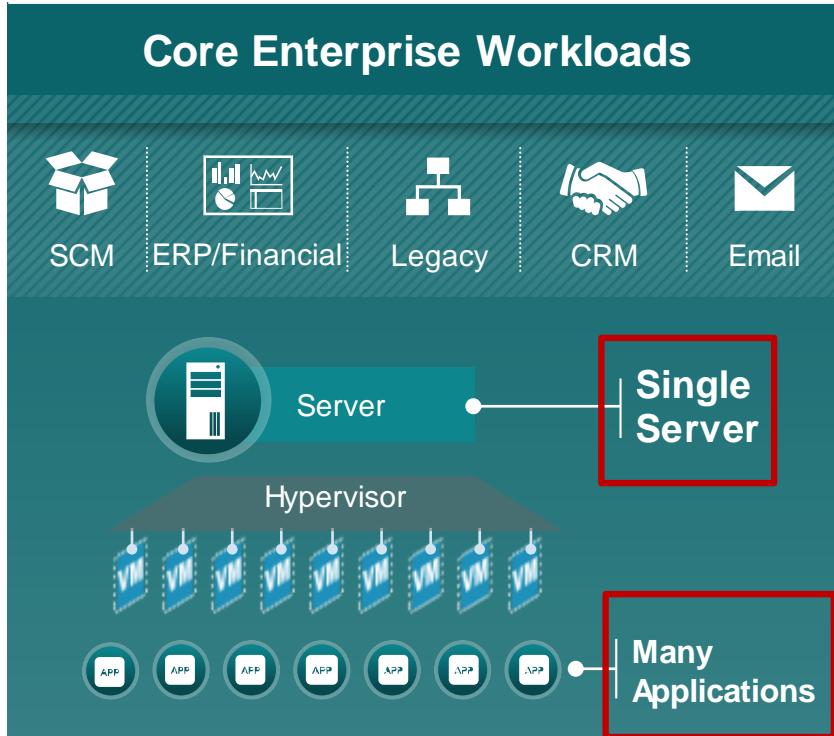
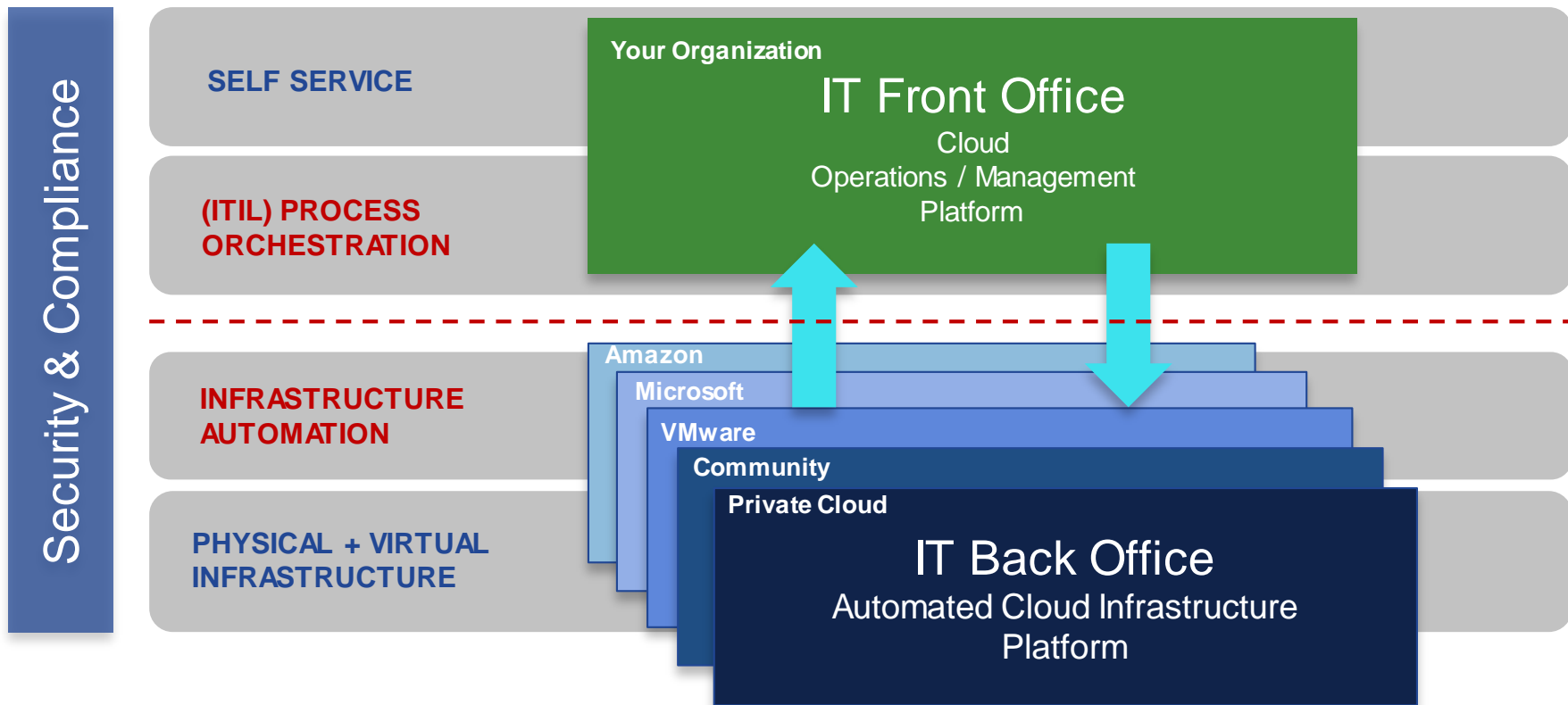## The underlying infrastructure does matter!

Part 2 – Technology

Our Direction

Data centers and cloud network infrastructures, both physical and virtual, will no longer be configured, but are software defined, policy driven and application centric.
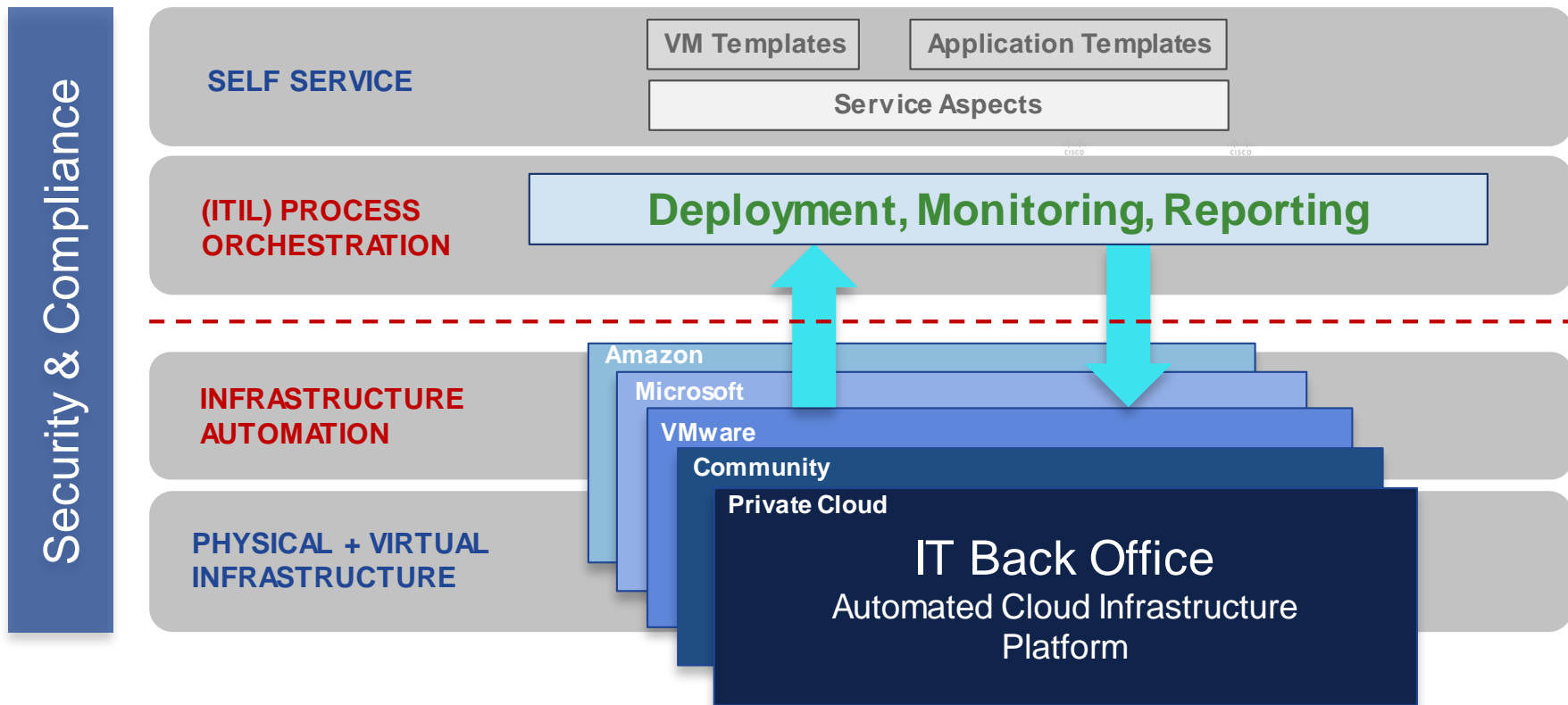
Different Apps require different type of IaaS

Core Enterprise Workloads

SCM | ERP/Financial | Legacy | CRM | Email

Server

Single Server

Hypervisor

VM VM VM VM VM VM VM VM VM

APP APP APP APP APP APP APP

Many Applications

Cloud Scale

Online Content | Gaming | Mobile | IoT | E-Commerce

Single Application

APP

Many Servers

Data Centre Reference Architecture

Security & Compliance

SELF SERVICE

(ITIL) PROCESS ORCHESTRATION

INFRASTRUCTURE AUTOMATION

PHYSICAL + VIRTUAL INFRASTRUCTURE

Your Organization

IT Front Office
Cloud
Operations / Management
Platform

Amazon

Microsoft

VMware

Community

Private Cloud

IT Back Office
Automated Cloud Infrastructure
Platform

cisco

Data Centre Reference Architecture

Security & Compliance

SELF SERVICE

| VM Templates | Application Templates |

Service Aspects

(ITIL) PROCESS ORCHESTRATION

Deployment, Monitoring, Reporting

INFRASTRUCTURE AUTOMATION

PHYSICAL + VIRTUAL INFRASTRUCTURE

Amazon

Microsoft

VMware

Community

Private Cloud

IT Back Office
Automated Cloud Infrastructure Platform

Data Centre Reference Architecture

Security & Compliance

SELF SERVICE
- VM Templates
- Application Templates
- Service Aspects

GEANT ROLE

(ITIL) PROCESS ORCHESTRATION

Deployment, Monitoring, Reporting

INFRASTRUCTURE AUTOMATION

Amazon
Microsoft
VMware
Community
Private Cloud

GEANT ROLE

PHYSICAL + VIRTUAL INFRASTRUCTURE

IT Back Office
Automated Cloud Infrastructure
Platform

Hybrid Cloud Orchestration

- Single Integrated Management Platform

- Full Application Lifecycle

- Scalable and Secure

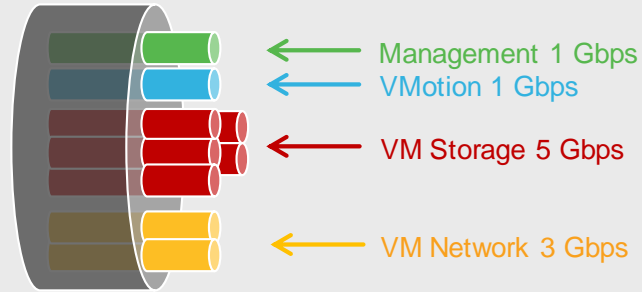- Portable and Manageable

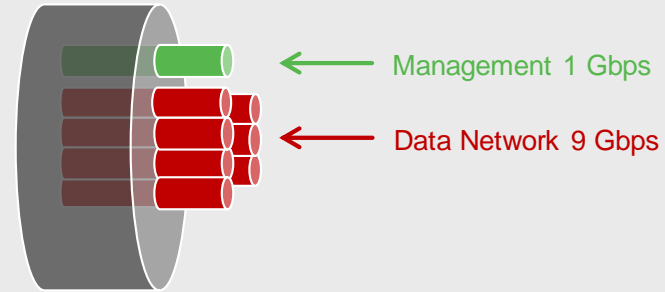…to and between any datacenter or cloud
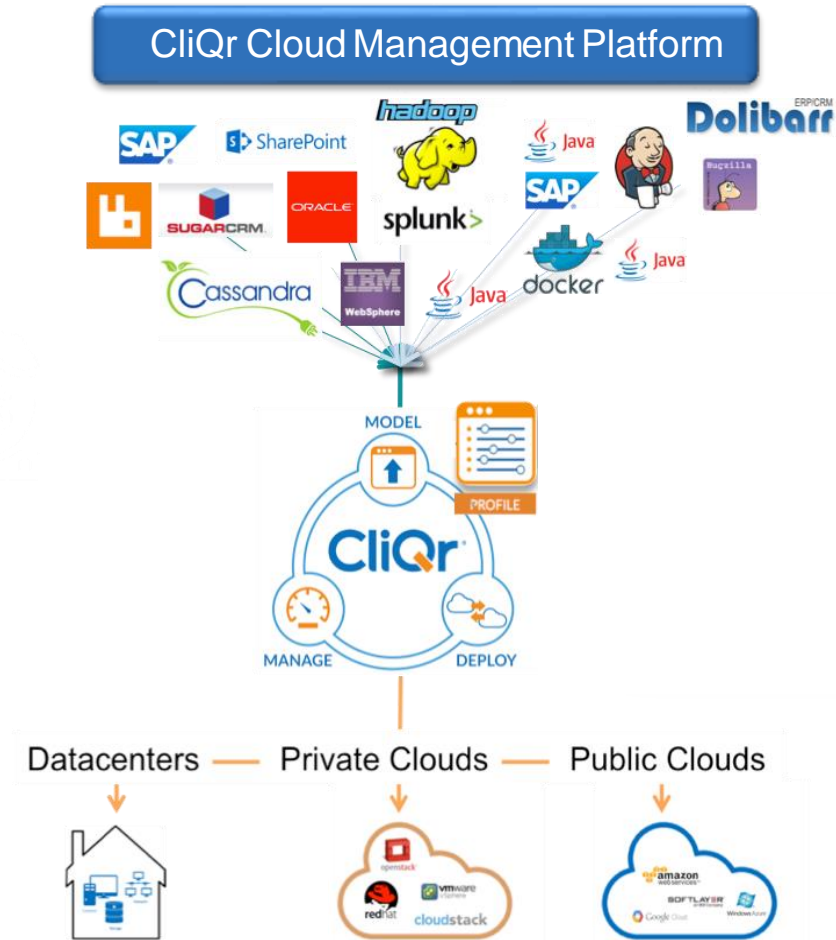
UCS Compute example
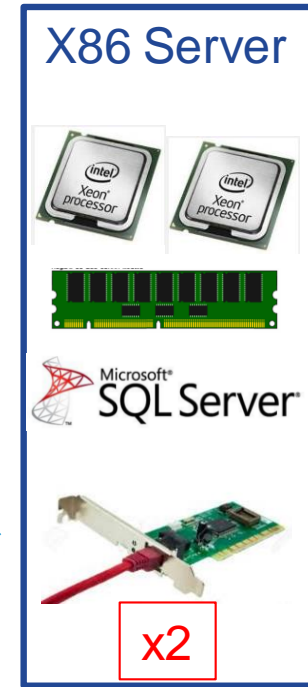
When is a Server really flexible?

X86 Server

x8

X86 Server

x2
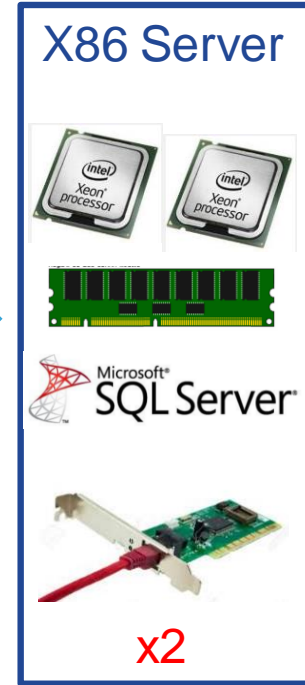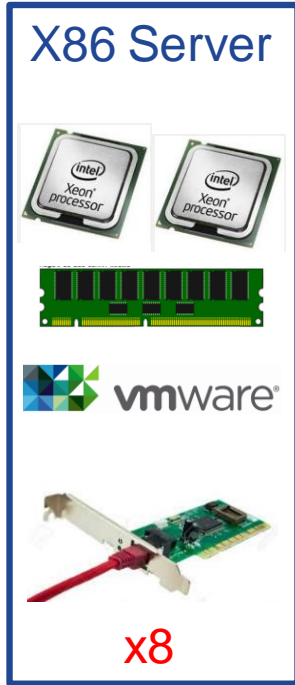
UCS Virtual Interface Card

Management 1 Gbps
VMotion 1 Gbps
VM Storage 5 Gbps
VM Network 3 Gbps

VIC Scenario Day 1:
ESX Host

Management 1 Gbps
Data Network 9 Gbps

VIC Scenario Day 2:
Database Server

When is a Server really flexible?

X86 Server

x2

Reporting

Management Tooling

Script

Timer

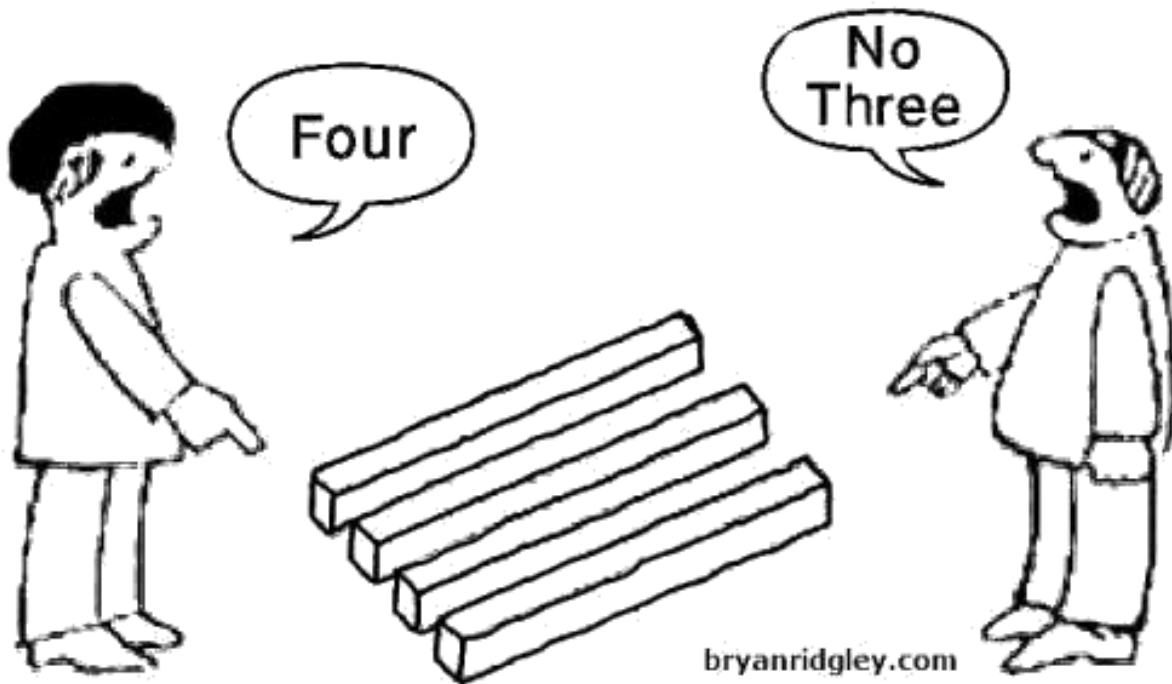X86 Server

x2
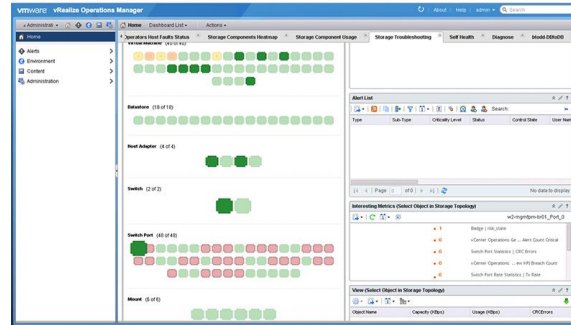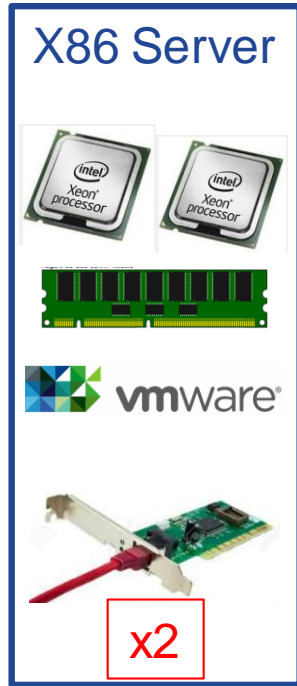
ACI Networking example

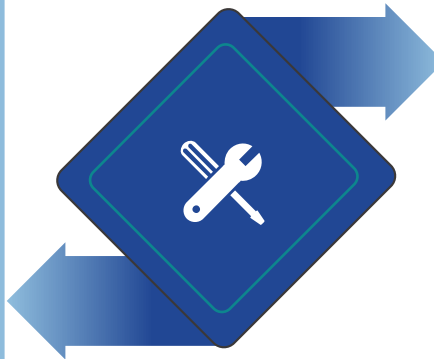# Communication Errors around Applications

Network Engineer

Application Owner

Two Types of Languages

Infrastructure Language

- VLAN
- IP Address
- Subnets
- Firewalls
- Quality of Service
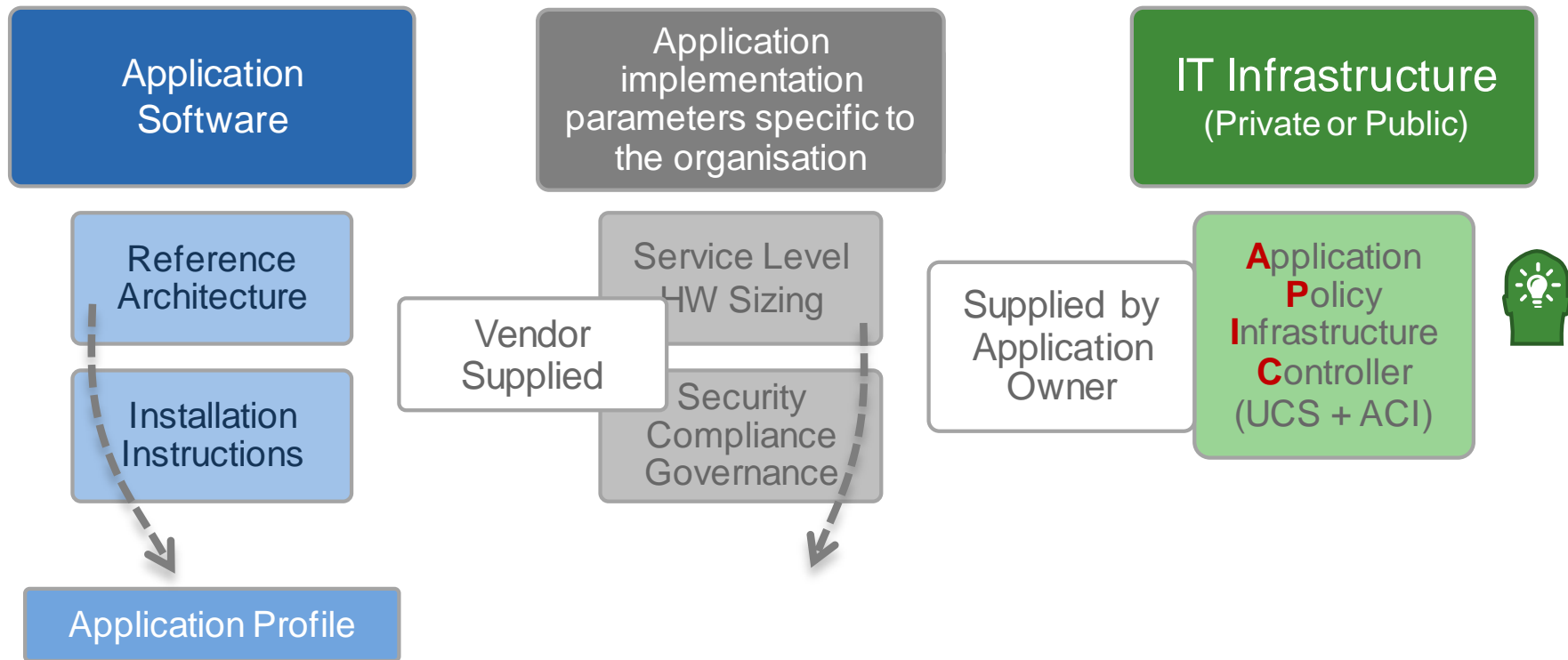- Load Balancer
- Access Lists

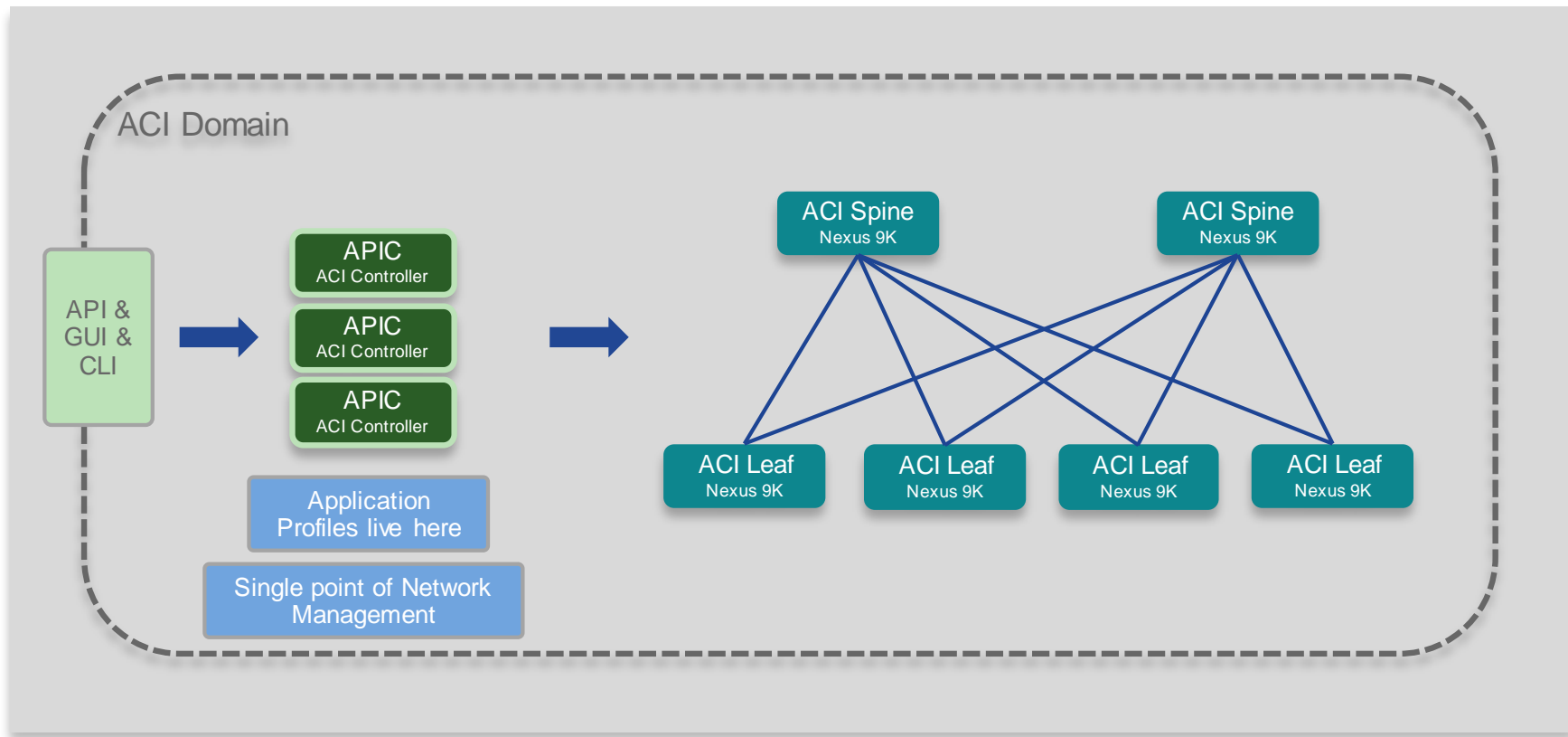## Human Translator

App Language

- Application Tier Policy and Dependencies
- Security Requirements
- Service Level Agreement
- Application Performance
- Compliance
- Geo Dependencies

Application Centric Profiles

Application Software

Application implementation parameters specific to the organisation

IT Infrastructure (Private or Public)

Reference Architecture

Service Level HW Sizing

Vendor Supplied

Supplied by Application Owner

Application **P**olicy **I**nfrastructure **C**ontroller (UCS + ACI)

Installation Instructions

Security Compliance Governance

Application Profile

ACI Topology

ACI Domain

API & GUI & CLI

APIC
ACI Controller

APIC
ACI Controller

APIC
ACI Controller

Application Profiles live here

Single point of Network Management

ACI Spine
Nexus 9K

ACI Spine
Nexus 9K

ACI Leaf
Nexus 9K

ACI Leaf
Nexus 9K

ACI Leaf
Nexus 9K

ACI Leaf
Nexus 9K

UCS Topology

UCS Domain

API & GUI & CLI

UCS Director
Converged

UCS Central
10x Manager

UCS Manager
160xCompute

Compute Profiles
live here

Single point of
Management

Fabric Interconnect

Fabric Interconnect

UCS Srv
Blade

UCS Srv
Composable

UCS Srv
Rack

UCS Srv
HyperC

You can not Press 'F1'
to enter BIOS

How it all fits together!

Q&A