Agenda

1. HXAP for Container
2. HXAP for Citrix VDI
3. Licensing – EA for DC/Hyperflex
4. Q&A
Legal Disclaimer

Many products and features described herein remain in varying stages of development and will be offered on a when-and-if-available basis.

This roadmap is subject to change at the sole discretion of Cisco and Cisco will have no liability for delay in the delivery or failure to deliver any of the products or features set forth in this document.
HyperFlex Application Platform for Containers
the HyperFlex Application Platform for Containers

Agile
Turnkey app modernization for DevOps

Simple
Cloud managed with Intersight

Economic
Reduce Licensing and Operational Costs
Try the DIY route

- Buy servers.
- Configure storage.
- Configure your network.
- Install VMware vSphere.
- Download and install Kubernetes.
- Figure out how you’ll secure it (identities, secrets, RBAC).

Try Cisco Container Platform on HyperFlex

- Buy Cisco HyperFlex™.
- Plug it in.
- The platform is completely installed in 30 minutes.
HyperFlex Application Platform for Containers
Turnkey app modernization platform

Native Kubernetes (100% Upstream)
Production grade: hardened, secure, reliable

Integrated
Networking | Storage | Load Balancing

Add-ons
Logging | Monitoring | Registry | Service Mesh

Intersight Full Stack Management
Install & upgrade
VMs and containers
Monitoring and telemetry
Multi-tenancy
Add GPUs
DIY vs. HyperFlex with HX-AP for Containers

1. **Switches**
   - Power on
   - Configure

2. **Nodes/Servers**
   - Power on
   - Configure
   - Install hypervisor
   - Cluster

3. **K8’s**
   - Download/ Install Kubernetes
   - Create K8 Cluster

4. **Infra Services**
   - Install CWOM/ Insert KubeTurbo
   - Download/ Configure CSI
   - Download/ Configure CNI

5. **Add-ons**
   - Install
   - Logging
   - Monitoring
   - Registry
   - Load balancer
   - Open Service Broker
   - Service Catalog
   - Istio

6. **Multicloud**
   - Configure K8
   - API for clouds

**Day 2+ Op’s**
- **Upgrades:** Constant upgrades of individual components
- **Support:** Multiple vendors
  - Manual management of support liability

**Cisco Intersight**
- Full stack deployment and configuration
- Kubernetes
- Infra Services
- Add-ons
- Multicloud

**HyperFlex Nodes**
- HX-AP K8’s CSI CNI API’s
- HX-AP K8’s CSI CNI API’s
- HX-AP K8’s CSI CNI API’s

Constant upgrade loop of individual components
Multiple support vendors of individual components – Who supports what???

One phone call
Cisco Intersight Workload Optimizer
Intelligent hybrid IT resource management

Simplify Infra Operations

Assure App Performance

Bridge the App-Infra Gap

Show IT’s Business Value
Optimize your Platform and don’t waste the HW Resources

IWO optimizes Cisco HyperFlex environments for dynamic workload demand

Results:
✓ Super-Cluster Optimization
✓ Intelligent Independent Scaling of Compute and Storage
✓ Resize Container depending to their Needs
Full stack Management for all Kind of Hyperflex Systems

Single hypervisor agnostic management across ESXi, Hyper-V or HX-AP

Telemetry across clusters in any physical location (DC | Edge | Colo)

Integrated CWOM for workload optimization across VMs and containers

Hypervisor Agnostic IaaS [VMaaS | CaaS]

IKS: Intersight Kubernetes Service
IWO: Intersight Workload Optimization
Optimize your Kubernetes as a Service Offering

**Providing Kubernetes for DEV**

- Enables Self Service flexibility
- Agility & Responsiveness
- Container-as-a-Service experience

**On-Prem**
- Curated container stack
- Turn-key infrastructure

**BRIDGING CaaS Private & Public CLOUD**
- Develop on Cloud, Deploy on CaaS
- Develop on CaaS, Deploy on Cloud
- Delivered and managed from the cloud

**PUBLIC CLOUDS**
- Multicloud Kubernetes Integrations

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Protect the Data

- Integration with 3rd Party Vendors like Cohesity
- CISCO Validated Design CVD
HXAP Architecture

HXAP Cluster Management - Install, upgrade, expand

Kubernetes node VM Management - Create, start, stop, move, delete

K8s Cluster management

K8s Tenant Cluster 1

Master node VM
Worker node VM
Worker node VM
Worker node VM

K8s Tenant Cluster 2

Master node VM
Worker node VM
Worker node VM
Worker node VM

HXAP Cluster provides highly available compute and storage
- Compute: Dynamic resource scheduling, HA, Live migration
- Storage: HyperFlex Data Platform with all of its features

Intersight provides centralized management for HXAP and k8s

K8s clusters created on HXAP using VMs to create k8s master and worker nodes. VMs necessary to support multi-tenancy

All k8s cluster lifecycle management provided by IKS control plane running in Intersight

IKS: Intersight Kubernetes Platform

IKS: Intersight Kubernetes Platform with all of its features
Double click on HXAP Architecture

- HXAP Compute Cluster
- HXDP Storage Cluster

- HXAP Infra and HXDP together create HXAP Cluster for VMs
- HXAP Infra on every node provides highly available compute cluster
- HXDP Controller VM on every node provides highly available storage cluster
- Each host runs Linux / KVM

VMs spun up on HXAP compute cluster with storage provided by HXDP shared storage

HXAP Cluster

K8s Tenant Cluster 1
- Master node VM
- Worker node VM
- Worker node VM

K8s Tenant Cluster 2
- Master node VM
- Worker node VM
- Worker node VM

Linux / KVM
Licensing for HXAP

- HX Dataplateform License STD or ENT each Converged Node
- HXAP AddOn & Intersight Advanced o. Premier License each Cluster Node
- Optional: IWO (Workload Optimization and Application Deep Insides) each VM/Container
Cisco UCS 240-SD Edge + Hyperflex Dataplatform Optimized for a Street Cabinet

Optimized Design for Edge Deployment
- 600mm ETSI Rack
- Central Management
- NEBS Compliant

GPU & FPGA

vSphere or HXAP Cluster with VM or Container Support

Hyperflex Dataplatform

Hybrid or AllFlash

Dual Socket CPU Cascade Lake
- Up to 64 TB Net AllFlash Storage RF2
- Up to 1,5 TB Memory

Up to 2x PCIe Network Offload Cards
- Mellanox or Intel (N3000 Roadmap)
- Scales 2–4 Nodes

Hyperflex Cluster Sizes
HyperFlex Application Platform for VDI

Roadmap for ~H1 CY21
VDI #1 UseCase for HX – Ecosystem Overview

- Accelerated ROI for the digital workplace
- Strong Growth due to COVID-19
- Alignments with all relevant Players and CVDs
- Backed by Cisco and partner reference configurations
February 6, 2020

To:

Cisco and Citrix are in a strategic partnership spanning over more than 11 years, commencing just prior to the Cisco launch of UCS and expanding across Networking solutions with Citrix ACI and Citrix Networking, Security with Cisco Duo and Cisco Umbrella and Cisco Collaboration with Citrix Workspace.

Citrix have collaborated with Cisco Hyperflex since the onset of the product launch to include solution validation and deployment support. This past year, our strategic partnership allowed for the delivery of a plugin connector between Citrix Cloud services and Cisco Hyperflex providing customers greater ease of deployment and automation management. Furthermore, we are in active discussions with the Cisco HyperFlex product team to understand upcoming feature enhancements and how to best align our respective roadmaps together to support our joint customers.

We are committed to this partnership and certain that this will continue to bring outstanding customer value today and in the future.

Steve Blacklock
VP, Global Strategic Alliances
Multi Hypervisor Architecture offer for VDI with Citrix

- **Single, simplified management across ESXi, Hyper-V or KVM**
- **Intersight exposes DaaS that is Hypervisor agnostic**
- **Full GPU Support for all Stacks (Hyper-V is not supporting vGPUs)**

Intersight Cloud or OnPrem

Cloud API

Hypervisor Agnostic DaaS

- **ESXi**
  - HX Data Platform
  - HyperFlex Cluster

- **Hyper-V**
  - HX Data Platform
  - HyperFlex Cluster

- **HXAP (KVM)**
  - HX Data Platform
  - HyperFlex Cluster

CVD for Citrix:
- VMware Based
- Hyper-V based
- HXAP – Roadmap FY21
VDI on Hyperflex Application Platform

- **HXAP Cluster Management** - Install, upgrade, expand
- **VM Management** - Create, start, stop, move, delete
- **Intersight Cluster Management**
- **Citrix Cloud Connector**
- **Citrix VirtualDesktop**
- **Citrix VirtualAPP**

**HXAP Cluster** provides highly available compute and storage:
- **Compute**: Dynamic resource scheduling, HA, Live migration, policy-based placement, load balancing, affinity, anti-affinity, CPU oversubscription
- **Storage**: HyperFlex Data Platform with all of its features

**Intersight** provides centralized management for HXAP and VMs.

**All VM lifecycle management provided by Intersight**

**IT Cloud** will save 25% against classical VDI Stack.

**B2B Cloud** will save 45% against classical VDI stack and no additional SP TAX for Sharing the Platform.

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Double click on HXAP Architecture

HXAP Cluster

HXAP Compute Cluster

HXDP Storage Cluster

HXDP Controller VM
HXAP Infra
HXDP Controller VM
HXAP Infra
HXDP Controller VM
HXAP Infra

Linux / KVM
Linux / KVM
Linux / KVM

Ressources for the Platform compare to ESXi
~ +40% reserved vCPUs
~ +10% reserved RAM
Demo Cisco HXAP for Citrix Cloud services

Citrix Cloud
Citrix Infra Services, Apps & Desktop services, Content collaboration, Secured browser

StoreFront
Delivery Controllers
SQL

Citrix Gateway

Studio
Director
License Server

Optional Citrix ADC
Server VDAs
Desktop VDAs
Active Directory

HXAP Cluster

Cisco Intersight

Go Synthetic! For Big Data Privacy

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Compute Only w/o HX License – Perfect fit for VDI

Key Benefit:
Ratio up to 2:1 and no HX License

A Scale Capacity Within Converged Nodes
B Add Converged Nodes
C Add Compute-Only Nodes

Non-HyperFlex hosts can connect to storage with IOVisor
Licensing

HX Dataplatform License STD or ENT per Converged Node

HXAP AddOn & Intersight Advanced o. Premier License per Cluster Node
Easy Access to HomeDrives with direct Storage Connectivity -> No additional Costs

Classical Legacy Storage

DESIGNED FOR SCALE, PERFORMANCE & ECONOMICS

HYPERFLEX Multicloud Platform
HYPER CONVERGED

DESIGNED FOR ARCHITECTURAL SIMPLICITY, PERFORMANCE AND SCALE

COMMON FABRIC

COMMON SERVER PLATFORM & MANAGEMENT

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TCO Perspective (12 Nodes 4+8 3Y for VDI)

- Reduce total TCO by 35%
- Single Vendor for Infrastructure Stack
- No additional License
- Complexity for Shared Platforms
- Pay as you growth
- Solution with Cisco Capital
Easy to consume
HX-AP
DataCenter Enterprise Agreement for HX

**ACI Premier**
- Includes ACI/NX-OS Advantage
- Network Assurance Engine
- Network Insight

**ACI Advantage**
- NX-OS
- VPN Fabric License
- Enterprise LAN
- Streaming Telemetry
- DCNM-LAN
- Network Services

**HX Premier**
- (includes HX Advantage)
- Equivalent to transactional HX Enterprise
- Stretched Cluster
- Acceleration Engine Card

**HX Advantage**
- (equivalent to transactional HX Standard)

**HX AP AddOn**
- HX Edge

**Intersight Premier**
- Intersight Advantage
- UCS Director
- Storage automation with Pure
- VM Automation
- Workflow Designer

**CloudCenter Suite Premier**
- (includes CC Advantage)
- Action Orchestrator
- Hybrid Cloud Optimized
- Container Networking
- Industry Integrated (Istio, Open Service Broker)
- HX & UCS Integrated

**Container Platform**
- Container as a Service
- K8s Lifecycle Management
- Cloud-native support
- SLA Adherence

**Multi-suite discounting**
- (On the Software Licensing)
- 5% 2 Suites*
- 10% 3 Suites
- 15% 4 Suites
- 18% 5 Suites
- 20% 6+ Suites

**Workload Optimization**
- Container Platform Standalone
3 Year Enterprise Agreement Example

- **EA License Purchase**
- **EA License Claims**
- Incremental licenses used beyond entitlement

Only pay for time remaining on any licenses at the annual True Forward.

- **Order 7 Nodes HX DP Licenses + Intersight**
- **Order additional 3x HX DP Licenses + Intersight**
- **Cost Savings**
- **True-Forward charge**

Day 1  | First 6 Month locked  | End of Year 1  | End of Year 2  | End of Year 3
What are the Benefits for you?

Simplicity – One Contract so see all Licenses and terminated to one Date

True Forward Use Software for free until yearly Date

Easy to use a new Software in Production and decide until next Deadline

Increase Discount by adding Products even on existing Discounts

Easy to plan purchase with Cisco DC Products

Easy to grow with Cisco DC Products

* First 6 Month for new EA’s are locked for True Forward
TCO combined with our EA

Reduce TCO by 42% with optimized Purchase and Forecast

All Software, Dataplatform and Intersight shown in the Licensing Portal

One Date for Renew everything related to the Software
It’s time for your Questions
Cisco HyperFlex Innovation Momentum

#1 Use Case for HX

Ongoing Innovations Every Quarter

- All Flash
- 40G NW
- SED
- Enterprise Workloads
- Profiler, Sizer
- Edge
- Connect UI
- Native Replication/DR
- M5 (Intel Purley)
- Scale
- Hyper-V
- Kubernetes
- Containers
- Application Performance Monitoring
- IaaS & Cloud Mobility
- Stretch Clusters
- Greater Scale with Resiliency
- Native DR Enhancements
- Cloud Storage Analytics
- All NVMe
- AI/ML Workloads with NVIDIA
- Citrix Cloud
- SAP Modernization

Market Momentum

4000+ HyperFlex Customers*

Co-innovation

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