



TURN IT UP

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The bridge to possible

HyperFlex Best Practices

Aaron Kapacinski HX TME
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Agenda

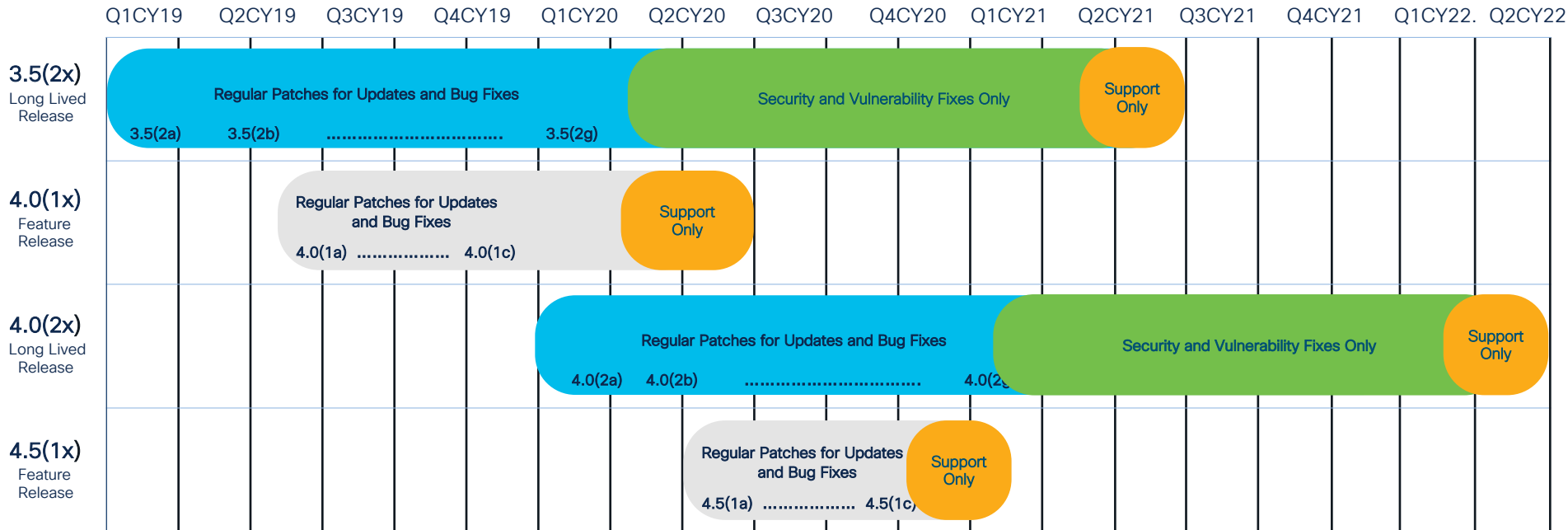
- Release selection
- Installation BPs
- Operational BPs
- Upgrade
- Edge
- Stretch Cluster
- Cisco Solution Support

Release Selection

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Planned Long Lived and Feature Releases



Note: The future release dates shown above are tentative and subject to change

HX recommended SW releases bulletin - [Link](#)

HX release policy- [Link](#)

Selecting SW Release

Refer to the recommended [release document](#)

- Varies by configuration (e.g., SED AF) and features (e.g., Stretched cluster)
- Recommendation for combination of HXDP, UCSM and ESX versions
- Doc updated based on CFDs, IFDs and release health in the field

Regarding Upgrades

- Change of recommended release doesn't mean upgrade immediately
- For specific defects use release based on CDET info or release notes
- Urgent notifications of issues are communicated via [field notices](#)

Enable HX ASUP (remember to register an email that is monitored, in the future we plan to send notifications there)

Best Practices – Release Notifications

Sign up for HX release notes updates, new SW availability and recommended release updates using the [Cisco Notifications portal](#)

✉ Create Subscription

✔ Enter Delivery Preferences

☒ Email ☐ RSS

Subscription Title*
HyperFlex Release Updates

Frequency
Daily

Email to*
araaruna@cisco.com

✔ Select Alert Type(s)

- ☒ End of Sale/Support Announcements
- ☒ Field Notices
- ☒ Cisco Security Advisories
- ☒ Critical
- ☒ High
- ☒ Medium
- ☒ Low
- ☒ Informational

✔ Select Product(s)

Product Name e.g. 6500 Switch Browse all

HyperFlex HX-Series × HyperFlex HX Data Platform ×

[Add more products](#)

Cancel

Create

Installation Best Practices

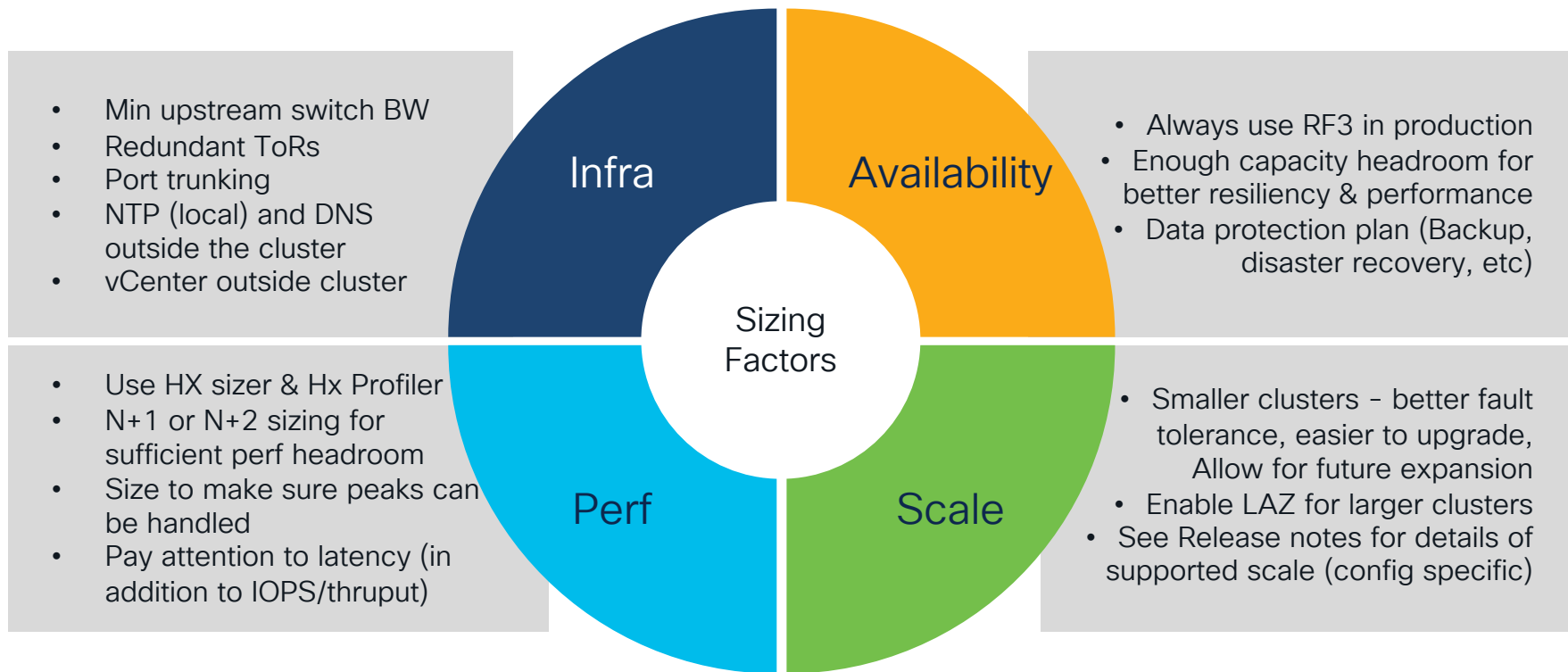


Installation Best Practices

Pre-Install Considerations

- Be aware of limitations of the installation “location”
 - For a given type of deployment (installer vs. Intersight) you may have limited options for upgrade or expansion
- Use the preinstall checklist or the preinstall tool
- HyperFlex Edge Deployment Guide links to the [HX Hardening Guide](#) for specific information regarding network port requirements
- Pay attention to the HX release notes and the HX recommended release document

Infrastructure and Sizing Considerations



Install Considerations – Continued

Networking

- Don't use VLAN 1
- Keep data VLAN L2 isolated for security
- Always use unique storage VLAN per cluster
- Deploy with IPs instead of FQDN to reduce DNS dependency
- Do not skip jumbo warning in installer – fix
- Using 1500 – no warning

Compute

- Uniform compute-only nodes that closely match HX in capability – symmetry
- Boost Mode
 - Add 4 additional vCPUs any time to all nodes
 - vCenter admin privs
 - No indication in Connect

Misc

- Multiple clusters under same FI – how to configure and avoid conflict
- Mixed CPU = EVC mode
- Select “Clear Partitions” to clean the disks
- VDI or VSI – select one for hybrid systems
- Run post install script

Expansion Considerations

Cluster node or drive expansion:

- Pay attention to the BOM compatibility when expanding the cluster
- When doing both node and drive expansion – first add all the nodes and then the drives
 - Nodes add additional performance to assist with drive rebalance
- Pay careful attention to max scale limits when expanding
 - See release notes

Configuration and Operational Best Practices



Configuration and Operational Best Practices

Resiliency

- Utilize burn-in or tests before production
 - Test failovers
 - Identify any process weaknesses

Datastores

- Don't put logs on HX datastore
- Only need one for most (regular cluster) use cases
 - Same performance as multiple
 - Less to manage
 - Better dedup opportunity (clones)
 - Fastest boot up time
- You may want 2 for HA heart-beating
- Adding additional datastores increases overall available queue depth
- Thin provisioning preferred - HX always thin-provisions capacity anyway

Configuration and Operational Best Practices

Security

- Follow the [Hardening Guide](#)
- Run the automated STIG script for best security posture
- Enable Secure Boot (HX 4.5.1a or higher)
- Apply ESXi security patches at any time if they are in the same release family

FI and vCenter

- Do not use HX host profiles or change any settings in UCSM or ESXi
 - Set and forget
- Do not change NIC ordering in vCenter
- Multiple clusters on the same FI should have unique VLANs and MAC Pool addresses

iSCSI

- MTU 9000 end to end (Don't forget MTU 9000 on the Initiator)
- Enable BoostMode if possible
- Configure Initiator with HX iSCSI CIP when there is no multipath

Configuration and Operational Best Practices

General Considerations

- Future growth considerations need to be considered (trends)
 - Intersight displays trends and capacity planning recommendations
 - Reclaim space in VMs with high turnover – See [Capacity Management](#)
- Run [Health Check](#) – triaging issues or identify potential issues
 - Built into HX 4.5.1a and above
- Intersight now has integrated HyperCheck capability for system health
- Be cautious of configuration drift
 - Example: Changes to networking configuration
 - Intersight HCL check
- Keep the cluster symmetric in expansion (compute nodes to match converged)
- Stagger snapshots for scheduled snaps

Upgrade Best Practices



Upgrade Best Practices

- **Consult release selection guidelines and review release notes for desired target**
- Make sure backups are current
- Use DRS in vCenter or you will have to manually vacate nodes.
- Understand the limitations on upgrading the environment non-disruptively
 - Application, HX, Hypervisor, UCSM, component firmware
 - App required to support vMotion/DRS or app level HA
 - HX takes care of everything except the app. However, remember it is a rolling upgrade and plan for enough perf capacity and headroom to accomplish that
- Understand timing requirements. Rolling upgrades on large clusters will take time
- Run [Health Check](#) - triaging issues before upgrades
- Do not use VUM and always use HX customized ESXi upgrade bundles

Edge Best Practices



Edge Best Practices

- Follow the [guidelines in CVDs](#) for general deployments
 - e.g., Use dedicated 1GB CIMC port for Edge and go with 10GE networking
- Understand expansion path (if any)
 - 10 GBE for higher perf and future node expansion capability
 - 1 GBE for clusters that will never be expanded and where TOR has no 10 GBE
- Do not overburden Edge deployments. They are targeted for a specific ROBO profile

Edge Best Practices

- Reference the pre-install checklist (differentiated for 2 node) or the Preinstall Tool
- Understand the advantages of Intersight
 - API, Policy and Profiling tools for rapid cluster config
 - Invisible cloud witness for 2 node deployments is a robust and strong differentiator
- Cisco Intersight offers full life-cycle management
 - 2 node must be deployed with Intersight
 - 3 and 4 node can be deployed with Intersight or On-Prem Installer

Edge Best Practices – N:1 Replication

VMs requiring protection should be:

- Migrated into the backup datastore
- Created in the backup datastore


VMs are always restored into the backup datastore


- Consider deleting VMs that have been “test-recovered”
- Delete the snapshots of previously deleted “test-recovered” VMs

VMs that no longer require protection should be:




- Migrated out of the backup datastore
- Manually delete snapshots of VMs migrated out of the backup datastore
 - `stcli dp vm list -brief`
 - `stcli dp vm delete --vmid`

Protected Clusters





Search

<input type="checkbox"/>	Name	Health
<input type="checkbox"/>	New-York	<div> Healthy</div>
<input type="checkbox"/>	London	<div> Healthy</div>
<input type="checkbox"/>	Edge-Sydney	<div> Healthy</div>

Stretch Clusters



Best Practices

Network – Overlay networks are in qualification

- OTV – supported
- VXLAN – testing
- NSX – not supported
- Keep the witness as fast as possible ($\ll 100\text{ms}$)
- Edge Invisible Witness is different from SC Witness

Datastores

- Create one on each site (affinity)

Failure Modes

- Survivability while maintaining online status requires a majority zookeeper quorum and more than 50% of nodes (the witness counts as zk node)
- It is possible that the surviving site could tolerate a node or disk loss (in a cluster greater than 2+2) if that node is not a zookeeper node, but it is not guaranteed
- Be sure to fully recover after a site failure (manual migration back)

Best Practices

Installation and Operation – Read the [SC WP](#)

- FI models per site should be the same
- Use the Sizer whenever possible (takes RF4 into account)
 - Should be able to run on one site – an enterprise solution
- Pre-plan port availability for firewalls
- Encryption – Third Party Software only
- Put the witness at a 3rd site (low latency)
- Be careful about witness upgrade – plan accordingly
- Expand symmetrically – update sites, expand
 - 2:1 compute ratios when adding compute resources
- DRS and HA should be turned on in VC
- Adjust HA settings as needed in VC (follow the WP)
- HXDP and ESXi (4.0.2a+) rolling update supported, UCS FW is manual
- NVMe on HX220 in 4.0.2a and above

Additional Information

- [Stretch Cluster White Paper](#)
- [HX with ACI CVD](#)
- [Admin Guide](#)

Cisco Solution Support

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Cisco Solution Support

The right kind of support service for Cisco Hyperflex and Data Center solution environments



Overview



Centralized support from Cisco® solution experts who own issue management and resolution across the Cisco and Solution Support Alliance Partner components across a solution deployment.

Available for Cisco's vast hardware and software catalog as well as our data center, collaboration, enterprise networking, Internet of Things, security, and service provider solutions.



Features

- Primary point of contact
- Priority response response by a Cisco solution expert
- 30 Minute or better response for Severity 1 and 2 support requests
- Cisco and Solution Support Partner product support team coordination
- Accountability for issue resolution
- Case management from first call to resolution
- Looks beyond original case to proactively identify and address potential issues
- Includes Cisco Smart Net Total Care® and Software Support Services



Customer value

Innovate with confidence and achieve faster ROI:

- 44% faster resolution than product support ¹
- 21% fewer issues ²
- 213% service ROI ²
- 17% lower hardware OPEX ²



Budget benefits

Available on our standardized price list and ordering tools for predictable costs on new deployments and expansions of deployed solutions.



Use cases

Customers who:

- Need a faster response time for high priority cases
- Want to call us for any issue with their Cisco solution, even if they haven't isolated it to a Cisco product
- Have HyperFlex servers part of larger data center with Cisco ACI, Security, third-party storage
- Replace Embedded ESXi
- Use HyperFlex for Virtual Desktop Infrastructure or Data Protection Software



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Thank you

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