AMRES Virtualization Solution

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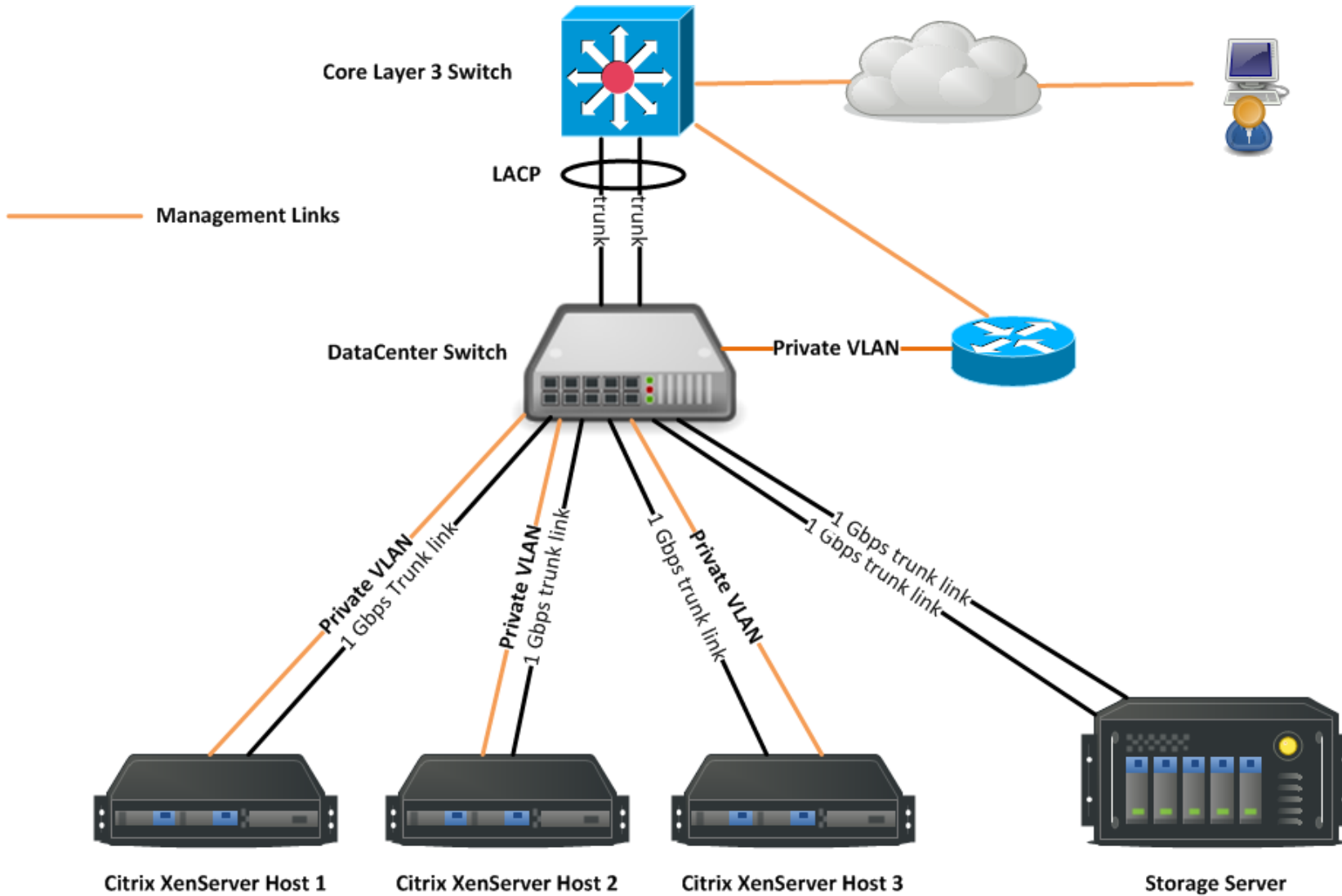
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Virtualization Benefits

- Less power consumption

- Higher infrastructure utilization

- Faster service provisioning

- Reduced datacenter footprint

going**green**

Network Architecture

Core Layer 3 Switch

LACP

trunk   trunk

Management Links

DataCenter Switch

Private VLAN

Private VLAN
1 Gbps Trunk link

Private VLAN
1 Gbps trunk link

Private VLAN
1 Gbps trunk link

1 Gbps trunk link
1 Gbps trunk link

Citrix XenServer Host 1

Citrix XenServer Host 2

Citrix XenServer Host 3

Storage Server

Host Server

- Citrix XenServer 6.2
  - FreeBSD OS
  - XEN hypervizor
- 2 or 4 physical disks in RAID 1 configuration
- Local Storage
  - Booting VMs
- Remote Storage
  - ISO images
  - VM backups
- Main constraint - Storage

XenServer 6.2

- Virtualization domains
  - Dom0 – central management domain (FreeBSD)
  - DomU – unprivileged domains (VMs)
- Dom0 is doing resource scheduling
- Management of XenServer
  - Specialized Web App – XenCenter App
  - CLI commands "xe" in Dom0
- Shortcoming: SNMP monitoring of host server

XenCenter App Features

- Monitor performance and statistics of VMs
- Console Tab for direct access to VM
- Clean and user-friendly interface
- Set admin user roles – only paid version
- Complete management of VM
  - Force Start, Reboot and VM system halt
  - Manage Storage Repositories
  - Create Server Pools
  - Add resources to VM (no hot-add)
  - Manage live migration, HA and disaster recovery
- No automated backup solution

VM provisioning

- Fast and ease VM provisioning
- Support for VLAN
- Very good support for Guest OS
- Essential software package – XenTool
  - Unlocks performance monitoring for each VM
  - Significantly increses VM performances
  - Problems with Ubuntu OS

Backup (1)

- No integrated backup solution

- Shell scritps must be used

  - Managed in Dom0

  - Executed in crontab every night

  - Time consuming

- Making snapshots is critical

- Backed up VMs are stored on the remote storage

- Major problem – VM enters 'hanged' state

Backup (2)

- VM are restored using the 'xe' commands in CLI (Dom0)

    - It is done in 4 steps

    - It is time consuming

- Around 20 backups of one VM are stored on remote storage

- Deleting old backups is also done with shell scripts

    - All the scripts are stored on the remote storage

    - Every new VM has a new UUID - scripts need to be regulary updated

Problem – VM in hanged state

- VM in hanging state is unusable

- Solution: destroy the virtualization domain (DomU)

  - **Side effects:** part of the storage repository is 'eaten'

- Clearing up the mess can be achieved only with the host server reboot

  - **Side effects:** all the VM on host server are unavailable for the time the host server is rebooted

Citrix XenServer Review

CONCLUSION
Citrix XenServer is best suited for small low cost deployments
Virtualization management team should be uniform
Virtualization management team should be rather small
Citrix XenServer is best suited for non-critical applications both in time and performance. VM should be fairly light for maintenance
Guest OS should be tested first prior to deploying the VM. Use CentOS as much as possible

connect • communicate • collaborate

Proxmox

- Management is done through web interface of host server
  - Manage the whole cluster from one host server
- Each VM is identified by UID in incremental manner starting from 100
  - Major problem in adding a new host server to cluster
- Can place VM in private network
  - Ineffective (1 VM per 1 private network)
- Integrated backup solution
- Possible to create server pools and add different permissions to different users for every pool
- CONCLUSION: Proxmox is stable, easy to manage and administrators should definitely explore this solution