Deploy Microsoft Lync Server 2010 in Two Physical Servers

Shahab Al Yamin Chawdhury

This brief solution document focuses on the deployment options regarding Lync 2010 in two physical servers. Hardware and Software Sizing as well as configuration are reflected within this document.

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This document provides high level guidance on how to install Microsoft Lync Server 2010 in a maximum of 1200 user's environment.

The Challenge

To meet requirements for voice and video conferencing with Microsoft Lync, the architecture must be capable of fast computational processing, low latencies, high throughput, and fast video rendering since Microsoft Lync poses a computationally intensive workload on servers, especially because of its requirement to drive real-time audio and video (RTA & RTV) output across low-bandwidth networks.

Eventually the faster drive you get the faster output it would deliver. Since SSD drives are getting increasingly popular and the more people are buying those the cheaper they are getting and prices for those are getting decreased at a faster rate. You should know that a standard SSD drive is nearly 30 times faster than a 15K SAS drive.

Now the following design is proven for a 1200 user base, concurrent users are 250 for IM/Chat, Concurrent users for A/V transmission is not more than 50. This is deployed using only two physical hardware. But do remember, add more RAM to each VM as you grow, and your performance would increase and you can accommodate more users, just use logic and Lync capacity & bandwidth calculator. But do realize that all scaling calculations are faulty by nature and not 100% accurate, and you should have some scalable buffer at hand when using sizing calculators.

Moreover this design is not fault-tolerant, zero HA addressed. If you want just make clusters out of it, make it OS cluster, not service cluster. Though RAID drives gives you some levels of satisfaction on the fault tolerance.

Hardware:

    a.   HP DL 380 G7 or Higher

    b.   DELL R720 or Higher

- Infrastructure Server:
  - Domain Controller (DC1)
  - System Center Virtual Machine Manager (VMM1)
  - SQL Database used for SCVMM
- Microsoft® Lync® Server:
  - Microsoft® Lync® Front-End Server (LYNCFES)
  - Microsoft® Lync® Back-End Server (LYNCBES)
  - Microsoft® Lync® File Server (LYNCFSS)
  - Microsoft® Lync® Monitoring and Archiving Server (LYNCMAS)

These platforms run the Intel Xeon E5- 2600 family of processors, with up to 64GB RAM, and 6 2.5" 146GB SAS drives, providing robust performance and scalability in a compact 2U/4U form factor. The Intel Xeon E5-2600 processor family features technology with up to 8 cores per processor, delivering fast processing power for compute-intensive multimedia applications.

Storage:

- Two 146GB SAS 6Gbps 15k disks were configured as RAID 1 volumes to host Windows Server 2008 with Hyper-V.
- Remaining four 146GB SAS 6Gbps 15k disks were configured as RAID 10 volumes to store the VMs.

Physical Configuration of the servers (HP/DELL)

| Configuration of Dell/HP Servers |
| --- |
| 2 x Intel Xeon E5-2640 Processor (2.5 GHz, 6 cores/12 threads per CPU) |
| 64GB Memory (4 x 16GB DIMMs @ 1600Mhz) |
| Microsoft Windows Server 2008 R2/2012 Enterprise with Hyper-V |
| 6 x 146GB SAS 6Gbps 15k Disks |
| Integrated RAID Controller |
| Broadcom 5720 NIC *2 (Use Teaming) |

Software's:

Virtual machines (VMs) were hosted on Windows Server 2012 with Hyper-V. System Center 2012 Virtual Machine Manager (SCVMM) was used to manage the environment. Obviously Lync Server 2010 Enterprise Edition is used for more sophisticated conferencing capabilities, which enables separation of server functionality and data storage to achieve higher densities and load balancing for better availability. It is understood that you already have an AD for this type of deployment. Please do exploit in the lab environment first, always.

The SQL server is used both for the SCVMM & Lync Databases. Two instances were used one for each SCVMM and Lync server.

Network Diagram
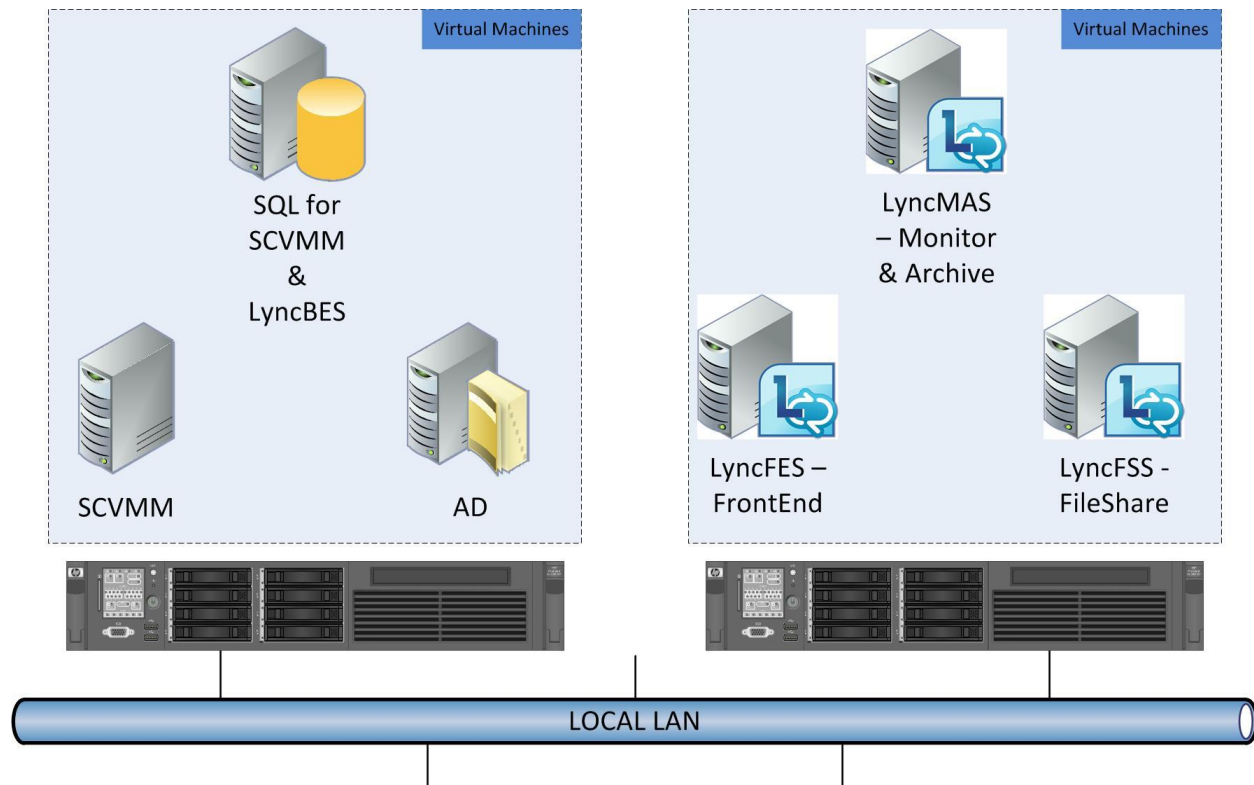
VM Configurations

VM Name	Processor	RAM
AD	2-vCPU	2GB
SCVMM	4-vCPU	4GB
SQL	4-vCPU	8GB
LyncFES	4-vCPU	4GB
LyncMAS	4-vCPU	4GB
LyncFSS	4-vCPU	4GB
LyncBES	4-vCPU	8GB
Total RAM Consumed		**34GB**

Note: You are still left with 34GB RAM ☺ do trial/error basis on RAM consumption and assign as required.

For further reading:

- Lync 2010 Capacity Planning Calculator:
  http://download.microsoft.com/download/9/1/4/91472C19-5460-4A4D-9B0E-97E20ECED7AC/Lync%20Server%202010%20Capacity%20Planning%20Calculator%20Guide.docx
- Lync 2010 & 2013 Bandwidth Calculator: http://www.microsoft.com/en-za/download/details.aspx?id=19011
- Lync 2010 Reference Architecture: http://technet.microsoft.com/en-us/library/gg412898%28v=ocs.14%29.aspx
- Network Planning, Monitoring, and Troubleshooting with Lync Server :
  http://www.microsoft.com/en-us/download/details.aspx?id=39084

- Microsoft Lync Server 2010 Edge Server Reference Architecture Diagrams:
  http://www.microsoft.com/en-ie/download/details.aspx?id=13791
- Microsoft Lync Server 2010 All Documents: http://technet.microsoft.com/en-us/library/gg398616%28v=ocs.14%29.aspx

- Blog Site: http://mobs-bd.org
- About Me: http://mobs-bd.org/?page_id=109
- Profile @ Microsoft:
  https://www.mcpvirtualbusinesscard.com/VBCServer/shuvromcse/profile
- YouTube Training Channel: http://www.youtube.com/user/shuvromcse