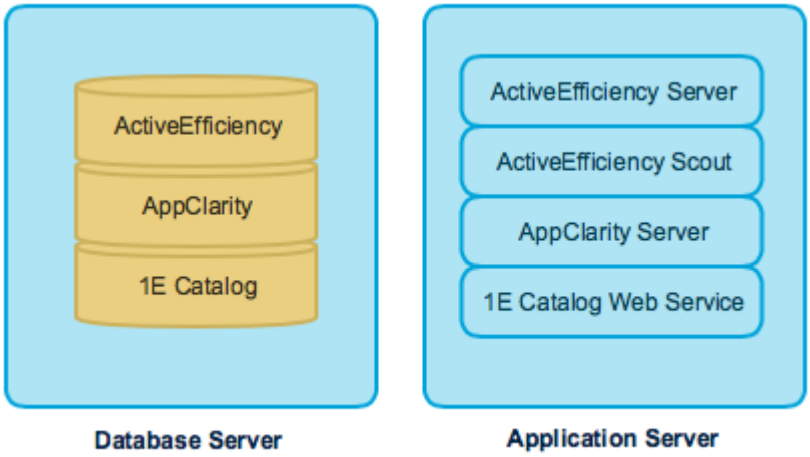
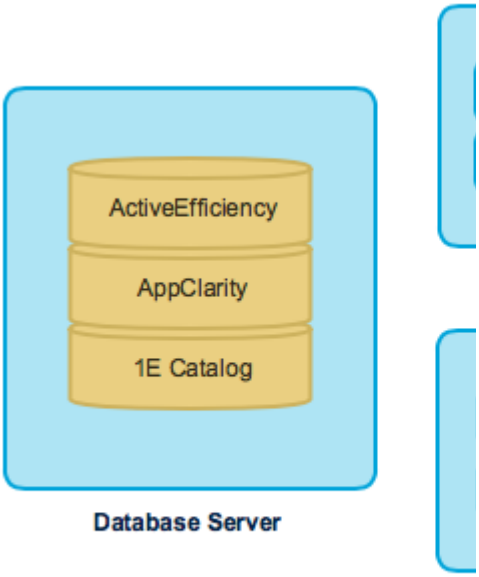
Server Sizing

Single-server deployment	Distributed deployment
	

Number of machines	5,000	25,000	50,000	100,0
Benchmark configuration				
Number of machines	5,337	17,726	47,574	85,4
Number of applications	19,300	26,000	31,700	22,5
Number of installations	395,000	1.1M	3.2M	5.
Combined Application server (AppClarity, ActiveEfficiency)				
CPU cores	4			
RAM	4 GB			
ActiveEfficiency server (total)				
CPU cores	*3*	4	4	
RAM	*3 GB*	8 GB	8 GB	12
ActiveEfficiency Scout application				
CPU cores	*1*	*2*	*2*	
RAM	*1 GB*	*4 GB*	*4 GB*	*8*
ActiveEfficiency Server service				
CPU cores	*1*	*2*	*2*	
RAM	*1 GB*	*4 GB*	*4 GB*	*4*
AppClarity server (including Catalog)				
CPU cores	*1*	2	2	
RAM	*1 GB*	4 GB	4 GB	8
Database server (total)				
CPU cores	2	4	4	
RAM	12 GB	12 GB	20 GB	36
SQL Server instance maximum memory	8 GB	8 GB	16 GB	32
Disk space for database	12.5 GB	18 GB	32 GB	55

SQL Server HDD requirements				
ActiveEfficiency database MDF	4 GB	4 GB	8 GB	16
ActiveEfficiency database LDF	50 MB	50 MB	50 MB	50
AppClarity database MDF	2 GB	6 GB	14 GB	24
AppClarity database LDF	1 GB	2 GB	4 GB	8
1E Catalog database MDF	2 GB	2 GB	2 GB	2
1E Catalog database LDF	2 GB	2 GB	2 GB	2
TempDB MDF	1 GB	1 GB	1 GB	2
TempDB LDF	64 MB	100 MB	200 MB	400
Expected Configuration Manager TempDB growth	1 GB	1 GB	2 GB	2
End-to-end synchronization time (approximate)	15 mins	1 hr	2 hrs	3

Benchmarking criteria

- Benchmarked against Windows Server 2012 R2 Hyper-V infrastructure, with database and application server components on separate virtual machines
- CPU – Hyper-V host CPU configuration: 2x Intel Xeon CPU E5-2407 v2 @ 2.40GHz, 10M Cache, 4C, Max Mem 1333MHz
- Networking – virtual machines connected over a 1Gbps link through a 1Gbps physical switch
- Database storage – Samsung 850 EVO solid state drives (SSDs) attached locally to the Hyper-V host with up to 98k/90k IOPS (4K random read/write QD32), and MDF, LDF and TempDB on separate SSDs

Recommendations

- Servers can be deployed either on physical or virtual machines. For deployment on a virtual machine, assign the CPU cores at 100% virtual machine reserve
- For environments with 25,000 or more computers, if the network usage between ActiveEfficiency, AppClarity and Database servers is a concern during the synchronization process, have a dedicated 1Gbps connection between these servers for the synchronization traffic
- Database Server:
  - deploy data, logs and TempDB on separate physical disks
  - configure SQL Server with maximum server memory limit and not at the defaults to consume unlimited memory
  - for sizing the Database server in the recommendations above, up to 4GB RAM has been added for the operating system on top of SQL Server instance RAM requirements
- AppClarity Server:
  - For environments with 200,000 or more computers, update the following entry for AppClarity in the `AMP.Coordinator.ServiceHost.config` xml file:
    ```
    <add key="ActiveEfficiencyWebServiceTimeOutSecs" value="600"/>
    ```
    This setting increases the web service response timeout duration to accommodate the long response time for a particularly large web service request during the AppClarity sync.