

# Intel® Cloud Builders: EOD Trading Reconciliation System



This blueprint is for an End of Trading Day Reconciliation System doing many small transactions of Extract/Transform/Load (ETL) data processing based on a VMware vSphere Virtualization solution that leverages Trusted Compute Pools to ensure security and Policy-Based Power Management Strategy to right-size the environment in correlation to its load. In addition, there are several design factors that predicate an understanding of the patterns of the Business Intelligence workload in question and how that workload behaves. The **most significant patterns** are called out for this application and are listed here by family, pattern name, a description, what problem the pattern solves (problem), key design decisions that influence the use of this pattern (driving forces), the typical participant patterns that this architectural pattern will use to solve the problem suggested by the scenario (collaborators), aspects of design that can be varied as a result of using this pattern (aspects that can vary), and the tradeoffs and results of using the pattern in terms of its limitations and constraints (tradeoff & constraints). This information is seen in the table below.

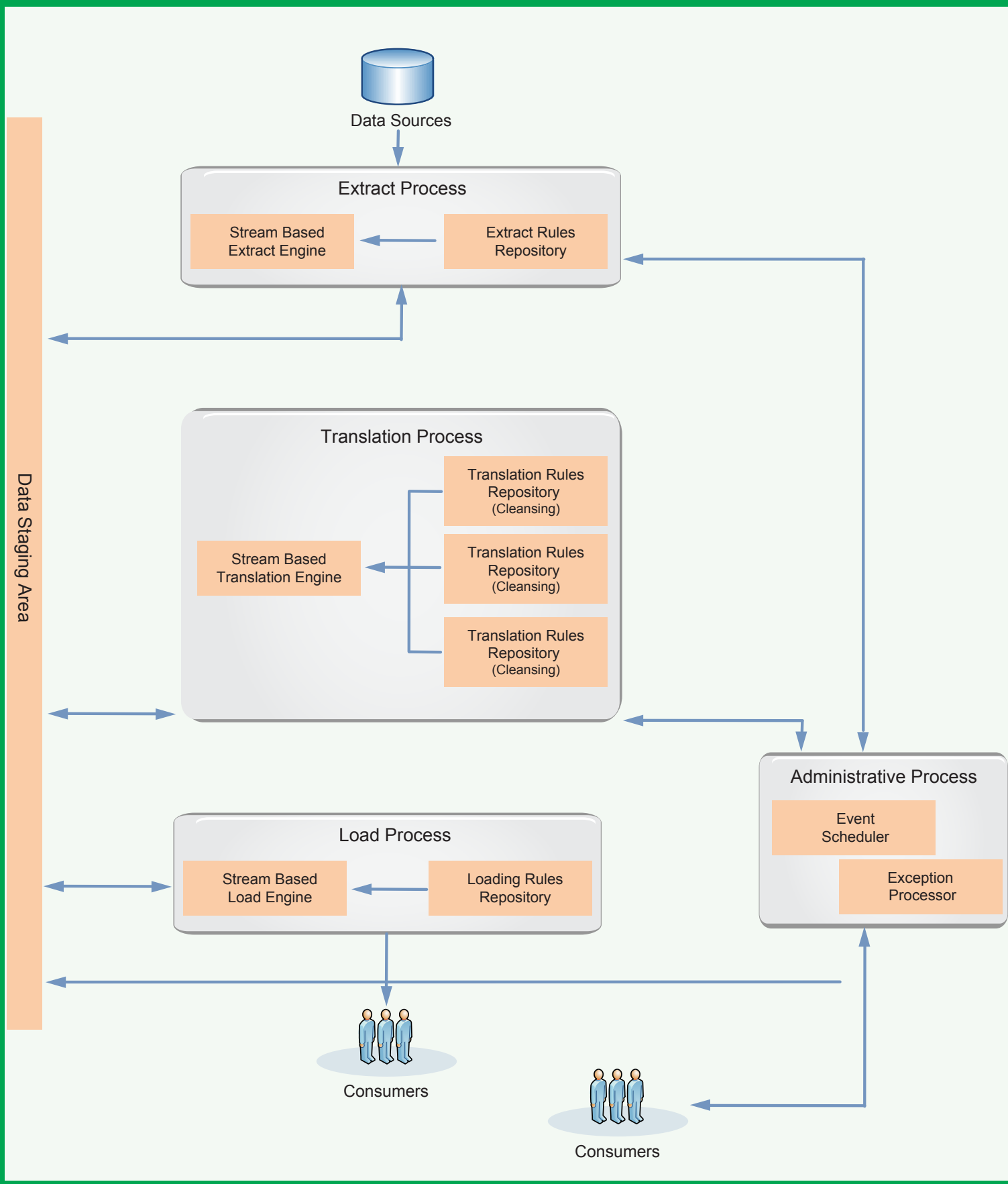
Using this knowledge, the following Blueprint sheets were generated by first considering the size of the workload to be applied: then performance requirements were used to generate virtual and logical views of the architectural, management, and physical infrastructure components needed to deploy this application in the cloud.

Instead of relying on the isolated intuition of architects and engineers to design the solution for cloud enablement, these blueprints are provided to ensure a more accurate and precise design is used as an initial instantiation to save on design, pilot and ultimately rebuild costs; and to enable more rapid go to market.

Pattern Family	Pattern Name	Brief Description	Problem	Driving Forces	Collaborators	Aspects that Can Vary	Tradeoffs & Constraints
Analytic System	Data Aggregator	Designed to aggregate many sources of data into pre-configured information hierarchies, categories, or record types. This pattern will typically summarize already existing information, or collect data from many sources in order to transform or display it in a uniform matter. The performance of this app type pattern is characterized in the qualities (e.g. real time, batch) and not part of the canonical definition	There is a need to aggregate many sources of data into pre-configured information hierarchies, categories or record types. The data might need to be transformed in order to summarize the disparate sources, making it available for display in a cohesive structure.	1) Multiple data sources have little in common with regard to structure and access mechanisms. 2) Multiple aggregation strategies are needed for different consumers. 3) Data qualities vary per input, and consumers have different data quality requirements. 4) Different consumers have unique delivery requirements.	A Data Aggregator pattern will be used when the aggregation problem is complex, and therefore separation of concerns is an important part of the design. Data Aggregators would call other patterns as a service in order to complete its tasks. Likely collaborators: a) Data Transformation, b) Data Driven Matcher (for reconciliations), c) Numerical Processor (for intensive calculations before summations), d) Portal Server - (for a comprehensive UI, when many sources and configuration options apply), e) Workflow pattern (for scheduling many complex aggregations), and f) Thick Client Portal would be client of a Data Aggregator.	1) Number of data sources. 2) Input formats. 3) Aggregation Structures. 4) Delivery service levels. 5) Data Aggregation Algorithms.	1) Multiple consumers and multiple sources, will increase the operational complexity, requiring scheduling or workflow. 2) Throughput will be a concern for aggregations with complex data structures and high volumes, solving these can increase operational complexity 3) Aggregations requiring very fast turnaround times may not be able to be mixed with long running aggregations and may require separate pattern instances. 4) Failover considerations get more complex for large data sets and/or complex hierarchies
Analytic System	Numerical Processor	Designed to optimize numerical calculations such as risk, pricing etc., this pattern specializes in processing numerical tasks such as multiple iterations of an algorithm. This pattern can perform calculations on large data sets with options for execution approach, Quality of Service levels and scenario choices. The Performance characteristics of Real-time/On demand, batch are elicited in the qualities and are not part of the canonical definition.	There is a need to perform calculations on large data sets with options for parallel or serial execution; options for Quality of Service levels (e.g. response time, iteration level), and environment choices (to run scenarios under a variety of assumptions)	1) Multiple calculations will need to be performed simultaneously for different requestors. 2) Each calculation request will have a different data environment with its own directions for completion of the calculation. 3) Some calculations will have very high performance calculation requirements.	This pattern will collaborate with other patterns if data needs to be transformed prior to the calculations or aggregated or rendered after calculations. Possibly called by a) Data Aggregator (b) Thick Client Portal (c) Blackboard, (d) Event Driven Analysis & Response UI—may call (e) Transformation Engine.	1) Calculation iterations. 2) Service Level parameters that guide a when a calculation is good enough. 3) Scenarios. 4) Environments that scenarios run in.	1) Extreme Latency requirements will probably force the creation of a separate instance of a numerical processor. 2) If algorithms need to be parallelized then a grid solution will be required
Analytic System	Transformation Engine	Focus on the transformation of data between sets of representations. Input and output streams could be multiple in nature. This pattern typically utilizes reference data to retrieve transformation rules, and could employ context driven rules to execute transformations.	There is a need to transform multiple, arbitrarily sized and formatted data sets from one representation to another. The transformation rules can be varied, complex and are subject to frequent change.	1) There are multiple input and output streams. 2) The rules guiding the transformations can be context driven for each stream and tend to change frequently. 3) One input stream can be transformed to multiple output stream formats. 4) Each stream will have its own service delivery option.	Transform engines will likely be called upon to perform a service by other patterns. Likely clients are a) Numerical Processor, b) Data Aggregator, c) Enterprise Service Bus, and d) Message Processor. Likely service collaborators are Data Driven Matcher	1) Number of data sources. 2) Input formats. 3) Output formats. 4) Delivery service levels. 5) Transformation Rules.	1) Multiple consumers and multiple sources, will increase the operational complexity, requiring scheduling or workflow. 2) Throughput will be a concern for complex transformations with high volumes, solving these can increase operational complexity. 3) Transformations requiring very low latency will not be able to be mixed with long running transformations and will require separate pattern instances. 4) Failover considerations get more complex for large data sets.
Data Retention System	Transaction Data Base	Transaction-based data retention systems must have ACID properties in order to support operational processing of data records whose applications require high data integrity.	There is a need to have the results of a transaction be guaranteed, durable, non-refutable, and serve as the data of record for an application.	1) Integrity of the transactions must meet ACID properties. 2) Failure recovery must support the ACID principles. 3) Throughput will always be a consideration.	The typical patterns that would collaborate would be involved in the processing of transactions, such as workflow and transaction managers.	1) This would be vendor specific	1) Reliability and throughput performance would need to be very highly rated over all other aspects.



# ETL - Cloud Deployed Components



## BASELINE SELECTIONS

### Demand Characteristics

Total # of Records (#)	300M to 600M
Runtime SLA (hours)	6 hrs to 8 hrs
Total Data Load (TB)	500GB to 1TB
Total Records Processed per Second (MB/s)	4MB/s to 8MB/s

### Resource Management Strategy

Trusted Compute Pools:	Yes
Policy-based Power Management	Yes

### Virtualization Management Strategy

VMware vSphere*:	Yes
Red Hat* Enterprise Virtualization:	No

## Pattern Function Descriptions

**Extract Rules Repository**- Contains rules that govern the extract process in a data driven manner.

**Event Scheduler**- Holds the operational schedule for all tasks and invokes processes as required.

**Data Staging Area**- Flexible storage pool that allows all 3 ETL processes to run simultaneously.

**Stream Based Translation Engine**- Transform multiple, arbitrarily sized and formatted data sets from one representation to another.

**Translation Rules Repository**- Rules for translating formats in a data driven, programmatic manner. Used because the rules change frequently.

**Stream Based Load Engine**- Distribute large data sets to multiple consumers, scheduled with variable delivery service levels.

**Exception Processor**- Provides a queue of all exceptions for the operator. Takes action to fix problems based upon operator commands.

**Stream Based Extract Engine**- Aggregate many sources of data into pre-configured information hierarchies, categories or record types.



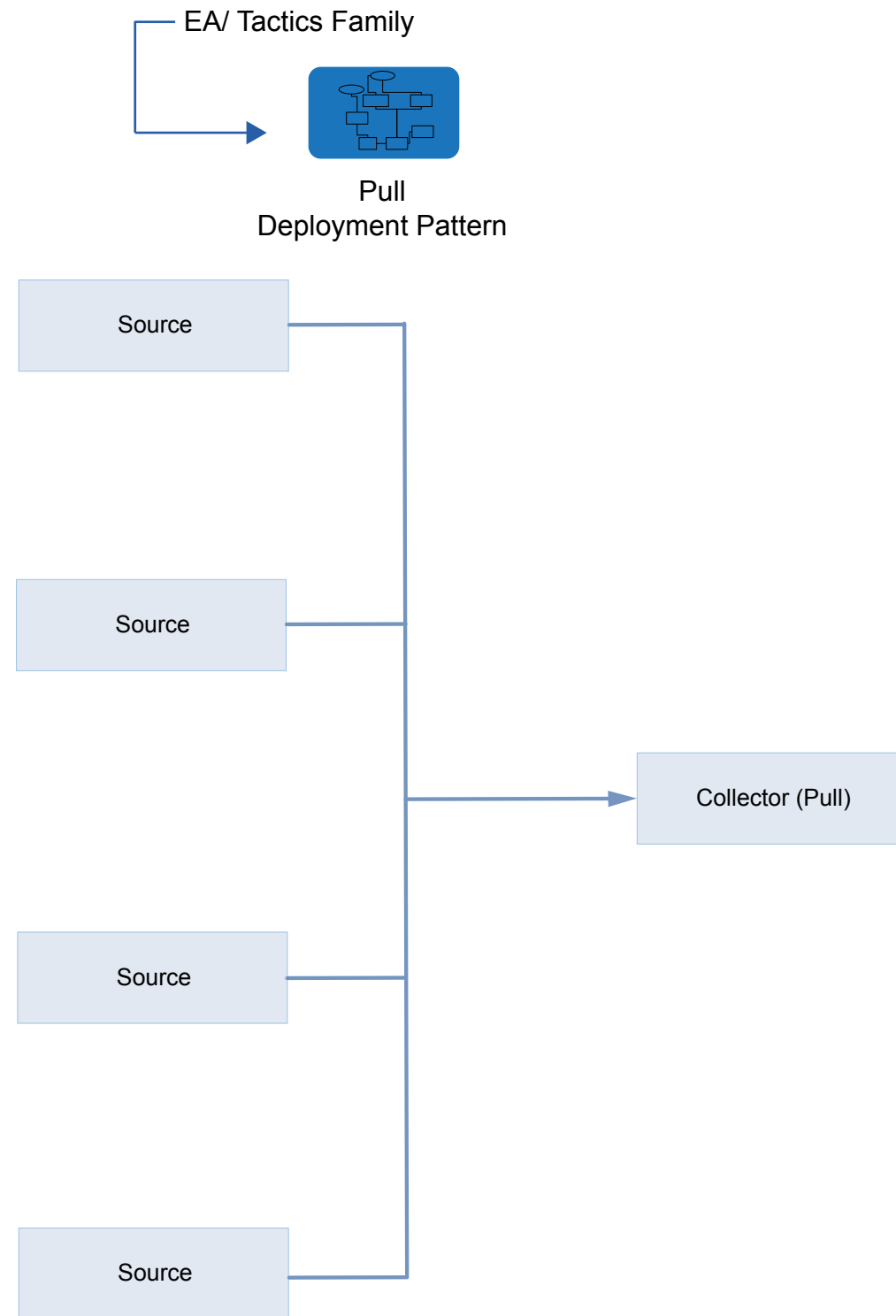
Shows a logical functional layout of a pattern or application. Also shows what the user selected for demand characteristics, compute, and storage

## COMPUTE SELECTIONS

Processor Chipset: Intel® Xeon® processor X5570 Intel® Xeon® processor X7560 Intel® Xeon® processor L7555	Quantity: 0 2 3
Memory Modules: DDR3	Quantity: 36
Network Adapter: Intel® 82598EB 10 Gigabit Ethernet Controller	Quantity: 7
Disk Type: Disk Drive Module - SSD	Quantity: 23



Illustrates a logical deployment architecture.



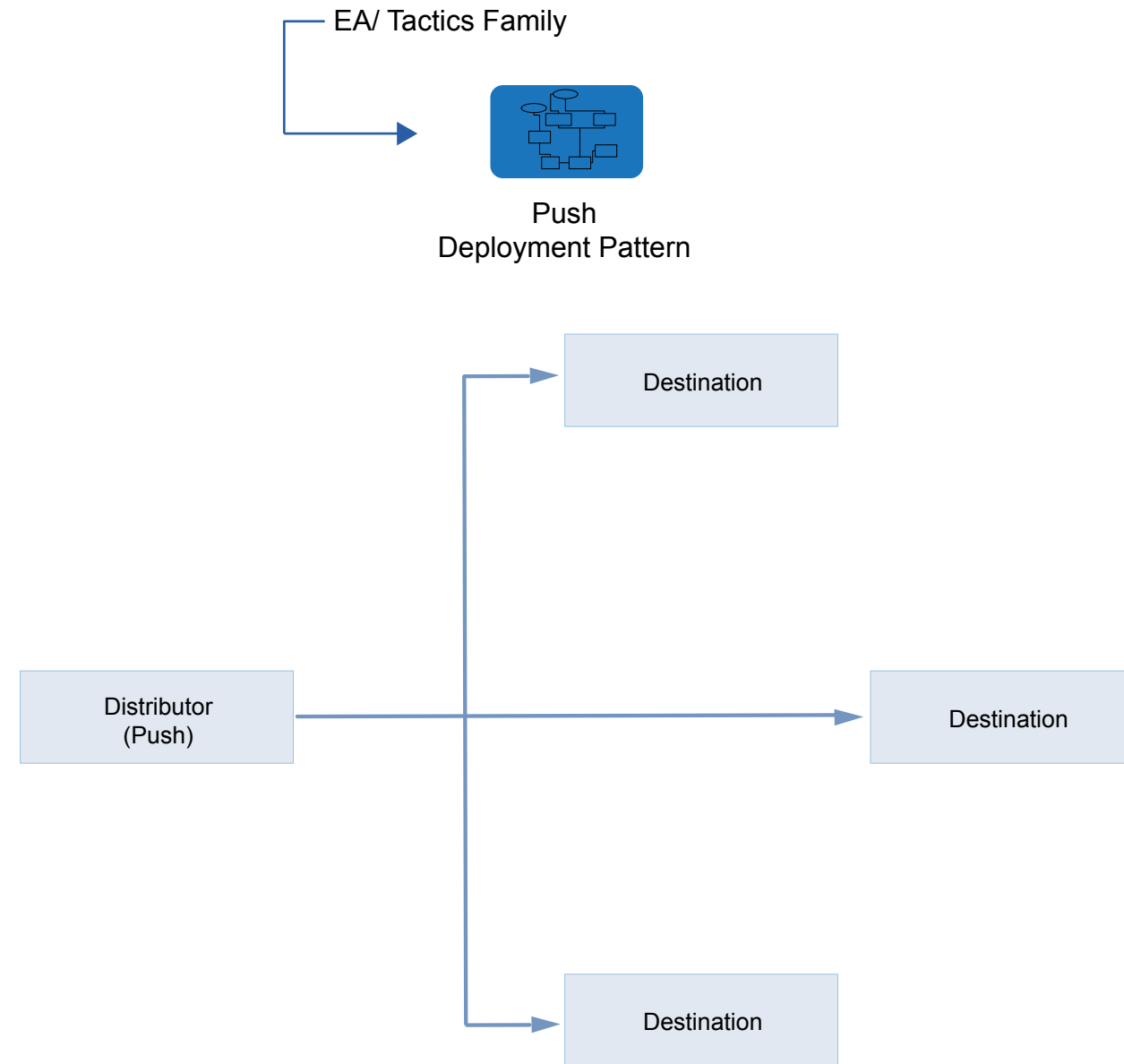
## Blueprint GPS

Shows which deployment pattern was used and the family of patterns that it came from. This is where a logical architecture would be deployed.

Note that more than one deployment pattern can be used to deploy a pattern or an application.

## Annotations

Illustrates a logical deployment architecture.



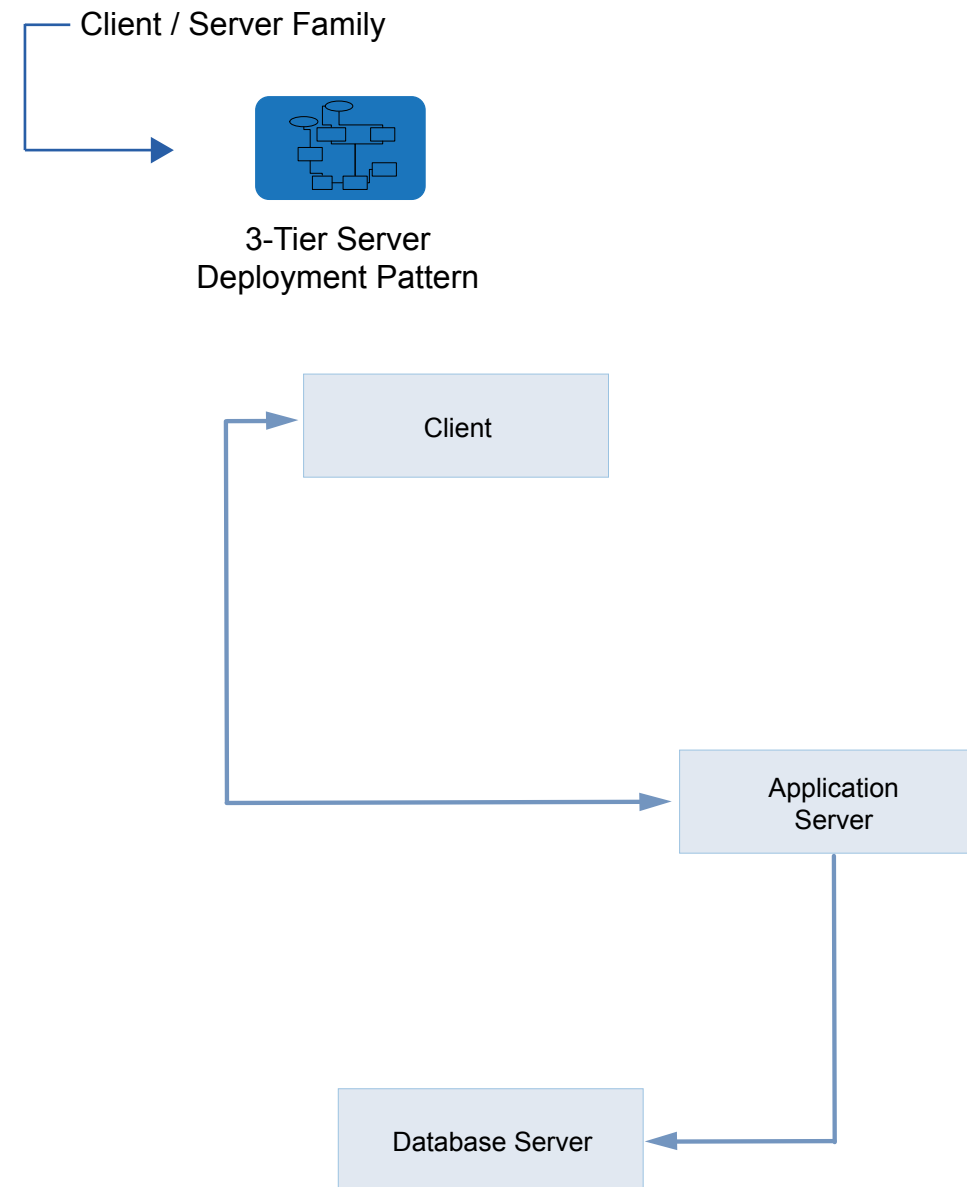
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## Annotations

Illustrates a logical deployment architecture.



## Blueprint GPS

Shows which deployment pattern was used and the family of patterns that it came from. This is where a logical architecture would be deployed.

Note that more than one deployment pattern can be used to deploy a pattern or an application.

## Annotations

Functional Pattern Component	Traditonal Deployment Pattern Name	Deployment Pattern Component	Guest Virtual Machine Consumption Characteristics			
			Compute (GHz)	Memory (GB)	Disk (GB)	Network (Gbps)
Data Staging Area	3 Tier Server	Database Server	0.26	15.78	195.65	2.77
Event Scheduler	3 Tier Server	Web Server	0.26	3.51	43.48	2.77
Exception Processor	Pull	Web Server	0.26	3.51	43.48	2.77
Extract Rules Repository	Push	Collector Server	0.26	5.26	43.48	2.77
Loading Rule Repository	Pull	Distributor Server	0.26	5.26	43.48	2.77
Stream Based Extract Engine	Push	Collector Server	0.66	15.78	152.17	2.77
Stream Based Load Engine	3 Tier Server	Distributor Server	0.66	15.78	152.17	2.77
Stream Based Translation Engine- Aligning	3 Tier Server	Application Server	1.19	15.78	65.22	2.77
Stream Based Translation Engine- Cleansing	3 Tier Server	Application Server	1.19	15.78	65.22	2.77
Stream Based Translation Engine- Summarizing	3 Tier Server	Application Server	1.19	15.78	65.22	2.77
Translation Rules Repository- Aligning	3 Tier Server	Application Server	0.26	5.26	43.48	2.77
Translation Rules Repository- Cleansing	3 Tier Server	Application Server	0.26	5.26	43.48	2.77
Translation Rules Repository- Summarizing	3 Tier Server	Application Server	0.26	5.26	43.48	2.77

### Configuration Notes:

The unit of work vectors, also called the consumption characteristics, provided above can be leveraged to construct the guest virtual machine instantiations necessary to deploy this application in the cloud. This organization of VMs by functional/application pattern component listed above is only one of numerous optimal deployments. In addition to this virtual layout, each VM will require additional configuration information. Additional configuration items for consideration are listed here:

1. <hostname> - This is the known DNS identifier and is widely published.
2. <ip\_address\_1> - This is the primary IP address used to locate or identify the system and this may be dynamic in nature.
3. <ip\_address\_2> - This is the secondary IP address used to locate or identify the system and this may be dynamic in nature.
4. <virtual\_ip\_address> - This is the static virtual IP address used to locate or identify the system. This value will seldom change (if ever).
5. <rack\_location\_name> - This is the current physical location of the VM (virtual machine) using a unique blade or rack naming convention.
6. <chassis\_location\_name> - This is the current physical location of the VM (virtual machine) using a unique chassis naming convention.
7. <facility\_location\_name> - This is the current physical location of the VM (virtual machine) using a unique data center naming convention.
8. <VM\_server\_hostname> - The system image is managed by a host server and this host server has a unique name associated with it. This location is also the CURRENT location of the boot kernel for the system image.
9. <guest\_os\_vendor> - This is the vendor OS type.
10. <guest\_os\_version> - This represents the version of the installed OS type for this system image.
11. <server\_function> - This identifies the INTENDED use of the system and includes Production, Development, Test, Staging or DR.
12. <service\_profile\_name> - This is the name of the service profile and should be unique for this system or unique to a pool of similar systems.

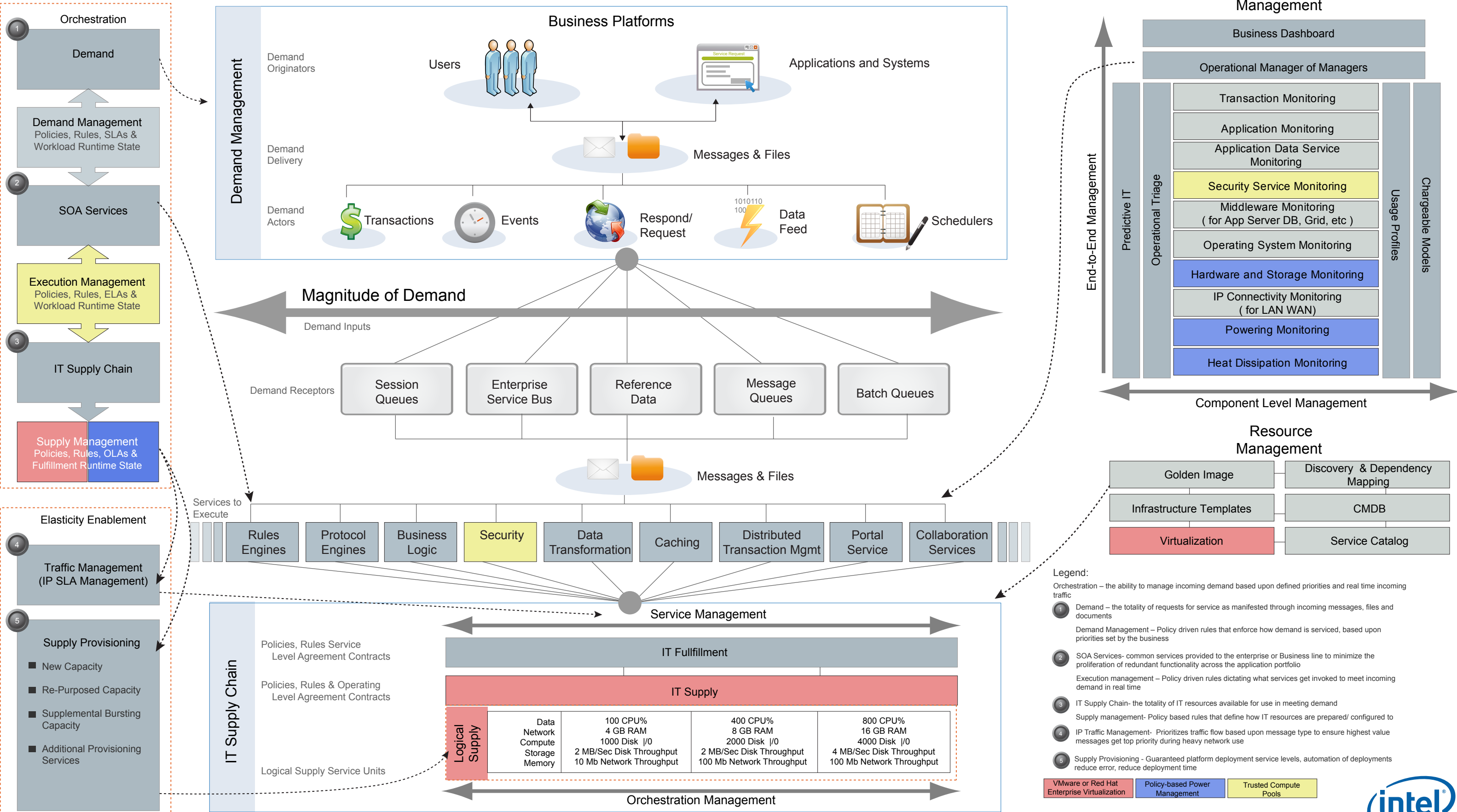


Capability Name	Vendor Name	Product Name	Model/Version	Quantity (#)	Base Attribute 1	Value	Unit	Base Attribute 2	Value	Unit	Base Attribute 3	Value	Unit
Compute Processor	Intel	Intel® Xeon®	processor X5570	0	Max Core Clock Speed	2.66	GHz	Max # of Cores	4	#	Max # of Threads	8	#
Compute Processor	Intel	Intel® Xeon®	processor X7560	2	Max Core Clock Speed	2.93	GHz	Max # of Cores	4	#	Max # of Threads	8	#
Compute Processor	Intel	Intel® Xeon®	processor L7555	3	Max Core Clock Speed	1.86	GHz	Max # of Cores	2	#	Max # of Threads	2	#
Compute Rack Server	Intel	Non-specific	Intel® S5500WB	5	Max # of Processor Sockets	2	#	Max # of Memory Slots	8	#	Max Memory Capacity	128	GB
Compute Memory	Non-specific	Non-specific	DDR3	36	Max Memory Capacity	4000	MB	Memory Type	DDR3	Categorical	Max # of Memory Ranks	2	#
Compute Chassis	Intel	Rack Chassis	Intel® SC5650BRP	1	Max Backplane Throughput	9600	Gbps	Max # Blade Slots	6	#	Max # Rack Slots	0	#
Converged Network Adapter	Intel	Eth Server Adapter	Intel® 82576EB	0	Max Throughput	1	Gbps	Max I/O	8000	IOPS	Max # of Ports	4	#
Converged Network Adapter	Intel	Eth Server Adapter	Intel® 82598EB	7	Max Throughput	10	Gbps	Max I/O	40000	IOPS	Max # of Ports	2	#
Storage Subsystem	Non-specific	Non-specific	6 Tray-14 DDMs/Tray	2	Max Raw Capacity	84000	GB	Max Disk Drives	84	#	Max Throughput	276	Gbps
Disk Drive Module	Non-specific	Non-specific	DD Module - FC	0	Max Raw Capacity	300	GB	Max Rotational Speed	15000	RPM	Form Factor	3.5	in
Disk Drive Module	Non-specific	Non-specific	DD Module - SATA	0	Max Raw Capacity	500	GB	Max Rotational Speed	7200	RPM	Form Factor	3.5	in
Disk Drive Module	Non-specific	Non-specific	DD Module - SSD	23	Max Raw Capacity	64	GB	Max Rotational Speed	N/A	RPM	Form Factor	2.5	in
Disk Configuration	Non-specific	Non-specific	RAID	1	Max Utilization	70	%	Min # of Disks	4	#	RAID Type	RAID 6	Categorical
Patch Level Monitoring	Non-specific	Non-specific SW	v0.0	1	Agent-less Inventory	Yes	Categorical	Secure Communications	Yes	Categorical	Virtual Environment Sup.	Yes	Categorical
Hardware Monitoring	Intel	RMM	v3.0	1	Max # of Systems Monitored	1	#	Sample Rate	1	#/s	Max # of System Probes	10	#
Thermal Improvement	Intel	Node Manager	v1.5	1	Thermal Threshold Value	Yes	Categorical	Thermal Budget	Yes	Categorical	Thermal Time Limit Value	Yes	Categorical
Infrastructure Monitoring	Non-specific	Non-specific SW	v0.0	1	Max # of Systems Monitored	1024	#	Real-time Monitoring	Yes	Categorical	Availability Monitoring	Yes	Categorical
Golden Image Generation	VMware*	vSphere*	v4.1	1	Max # of Images Supported	Unlimited	#	Custom Image Templates	Yes	Categorical	Custom Media Repository	Yes	Categorical
Policy Based Provisioning	VMware*	vCenter*	v4.1	1	Agg. Physical Resources	Yes	Categorical	Affinity Rules	Yes	Categorical	Max VM Server Support	32	#
Power Monitoring	Intel	Node Manager	v1.5	1	Power Threshold Value	Yes	Categorical	Power Budget	Yes	Categorical	Power Time Limit Value	Yes	Categorical
Power QoS Policies	VMware*	vSphere*	v4.1	1	Monitor Power Usage	Yes	Categorical	Server Level Power Control	Yes	Categorical	Policy-based Power Mgmt	Yes	Categorical
Heat Dissipation Monitoring	Intel	Node Manager	v1.5	1	Thermal Threshold Value	Yes	Categorical	Thermal Budget	Yes	Categorical	Thermal Time Limit Value	Yes	Categorical
Database Cluster Management	VMware*	vSphere*	v4.1	1	Monitor Cluster State	Yes	Categorical	Synchronize Databases	No	Categorical	Create DB Snapshots	No	Categorical
VM Patch Management	VMware*	vSphere*	v4.1	1	OS Support	Windows	Categorical	VM Server Patch Mgmt	Yes	Categorical	VM Guest Patch Mgmt	Yes	Categorical
Dynamic Resource Pools	VMware*	vSphere*	v4.1	1	Dynamic Resource Balance	Yes	Categorical	Resource Monitoring Sup.	Yes	Categorical	Power MgmtSupport	Yes	Categorical
Thin Provisioning	VMware*	vSphere*	v4.1	1	Compute Thin Provisioning	Yes	Categorical	Memory Thin Provisioning	Yes	Categorical	Network Thin Provisioning	No	Categorical
Virtual Network Monitoring	VMware*	vCenter*	v4.1	1	Agent-less Monitoring	Yes	Categorical	Network Performance	Yes	Categorical	Dependency Mapping	No	Categorical
Virtual Storage Configuration Management	VMware*	vSphere*	v4.1	1	VM Guest Datastore Mgmt	Yes	Categorical	Storage Subsystem Control	No	Categorical	LUN Provisioning	Yes	Categorical
Virtual Disk Management	VMware*	vSphere*	v4.1	1	VM Guest Support	Windows	Categorical	VM Server Support	Local	Categorical	(null)	(null)	(null)
Virtual Machine Monitoring	VMware*	vCenter*	v4.1	1	Agent-less Monitoring	Yes	Categorical	VM State Monitoring	Yes	Categorical	(null)	(null)	(null)
Virtual Networks	VMware*	vSphere*	v4.1	1	Max # Virtual Switches	16	#	Max # Virtual Ports	256	#	VLAN Tagging Support	Yes	Categorical
Virtual Machines	VMware*	vSphere*	v4.1	1	Max # VMs per Server	512	#	Max Memory per VM	256	GB	Max CPU per VM	8	#
Virtual Machine Snapshots	VMware*	vSphere*	v4.1	1	Max # Snapshots	Unlimited	#	Max # Conc. Guest Builds	1	#	(null)	(null)	(null)
Virtual Resource Monitoring	VMware*	vCenter*	v4.1	1	Agent-less Monitoring	Yes	Categorical	VM Compute Monitoring	Yes	Categorical	VM Storage Monitoring	Yes	Categorical
Cloud Self-Service Portal	VMware*	vCloud Director*	v1.0	1	Max Virtual App. Support	1028	#	Virtual Media Support	Yes	Categorical	Virtual Catalog Support	Yes	Categorical
Cluster/Pool Balancing	VMware*	vSphere*	v4.1	1	Dynamic Resource Balance	Yes	Categorical	Resource Monitoring Sup.	Yes	Categorical	Power MgmtSupport	Yes	Categorical
Access Security Monitoring	VMware*	vShield*	v4.1	1	Policy Decision Point	Yes	Categorical	Policy Execution Point	Yes	Categorical	Policy Information Point	Yes	Categorical
Workload Orchestration & Management	VMware*	vCloud Director*	v1.0	1	Policy-based resource Mgmt	Yes	Categorical	Integrates Auto. Processes	Yes	Categorical	Exception Handling	Yes	Categorical
Security Monitoring	VMware*	vShield*	v4.1	1	Policy Decision Point	Yes	Categorical	Policy Execution Point	Yes	Categorical	Policy Information Point	Yes	Categorical

Capability Name	Vendor Name	Product Name	Model/Version	Quantity (#)	Base Attribute 4	Value	Unit	Base Attribute 5	Value	Unit
Compute Processor	Intel	Intel® Xeon®	processor X5570	0	Max Memory Size	144	GB	Bit Support	64	bits
Compute Processor	Intel	Intel® Xeon®	processor X7560	2	Max Memory Size	144	GB	Bit Support	64	bits
Compute Processor	Intel	Intel® Xeon®	processor L7555	3	Max Memory Size	144	GB	Bit Support	64	bits
Compute Rack Server	Intel	Non-specific	Intel® S5500WB	5	Max # of I/O Slots	6	#	Max I/O Bandwidth	40	Gbps
Compute Memory	Non-specific	Non-specific	DDR3	36	(null)	(null)	(null)	(null)	(null)	(null)
Compute Chassis	Intel	Rack Chassis	Intel® SC5650BRP	1	Max Power Consumption	1200	W	Height	6	U
Converged Network Adapter	Intel	Eth Server Adapter	Intel® 82576EB	0	(null)	(null)	(null)	(null)	(null)	(null)
Converged Network Adapter	Intel	Eth Server Adapter	Intel® 82598EB	7	(null)	(null)	(null)	(null)	(null)	(null)
Storage Subsystem	Non-specific	Non-specific	6 Tray-14 DDMs/Tray	2	Max Power Consumption	30380	W	Max Heat Output	96020	BTU
Disk Drive Module	Non-specific	Non-specific	DD Module - FC	0	(null)	(null)	(null)	(null)	(null)	(null)
Disk Drive Module	Non-specific	Non-specific	DD Module - SATA	0	(null)	(null)	(null)	(null)	(null)	(null)
Disk Drive Module	Non-specific	Non-specific	DD Module - SSD	23	(null)	(null)	(null)	(null)	(null)	(null)
Disk Configuration	Non-specific	Non-specific	RAID	1	(null)	(null)	(null)	(null)	(null)	(null)
Patch Level Monitoring	Non-specific	Non-specific SW	v0.0	1	(null)	(null)	(null)	(null)	(null)	(null)
Hardware Monitoring	Intel	RMM	v3.0	1	Max # of Process Probes	Unlimited	#	Max # of Log File Probes	10	#
Thermal Improvement	Intel	Node Manager	v1.5	1	Real-time HW Reading	Yes	Categorical	(null)	(null)	(null)
Infrastructure Monitoring	Non-specific	Non-specific SW	v0.0	1	Rules-based Automation	Yes	Categorical	Hist.Trend-based Reporting	Yes	Categorical
Golden Image Generation	VMware*	vSphere*	v4.1	1	Media Transcription	Yes	Categorical	Automatic Patch Insertion	Yes	Categorical
Policy Based Provisioning	VMware*	vCenter*	v4.1	1	Max VM Support	1280	#	Policy-based Management	Yes	Categorical
Power Monitoring	Intel	Node Manager	v1.5	1	Real-time HW Reading	Yes	Categorical	(null)	(null)	(null)
Power QoS Policies	VMware*	vSphere*	v4.1	1	VM Scaling	Yes	Categorical	(null)	(null)	(null)
Heat Dissipation Monitoring	Intel	Node Manager	v1.5	1	Real-time HW Reading	Yes	Categorical	(null)	(null)	(null)
Database Cluster Management	VMware*	vSphere*	v4.1	1	Log Shipping	Yes	Categorical	Create Database Mirror	Yes	Categorical
VM Patch Management	VMware*	vSphere*	v4.1	1	(null)	(null)	(null)	(null)	(null)	(null)
Dynamic Resource Pools	VMware*	vSphere*	v4.1	1	(null)	(null)	(null)	(null)	(null)	(null)
Thin Provisioning	VMware*	vSphere*	v4.1	1	Datastore Thin Provisioning	Yes	Categorical	(null)	(null)	(null)
Virtual Network Monitoring	VMware*	vCenter*	v4.1	1	(null)	(null)	(null)	(null)	(null)	(null)
Virtual Storage Configuration Management	VMware*	vSphere*	v4.1	1	(null)	(null)	(null)	(null)	(null)	(null)
Virtual Disk Management	VMware*	vSphere*	v4.1	1	(null)	(null)	(null)	(null)	(null)	(null)
Virtual Machine Monitoring	VMware*	vCenter*	v4.1	1	(null)	(null)	(null)	(null)	(null)	(null)
Virtual Networks	VMware*	vSphere*	v4.1	1	(null)	(null)	(null)	(null)	(null)	(null)
Virtual Machines	VMware*	vSphere*	v4.1	1	Max I/O per VM	(null)	IOPS	Max Throughput per VM	(null)	Gbps
Virtual Machine Snapshots	VMware*	vSphere*	v4.1	1	(null)	(null)	(null)	(null)	(null)	(null)
Virtual Resource Monitoring	VMware*	vCenter*	v4.1	1	VM Memory Monitoring	Yes	Categorical	(null)	(null)	(null)
Cloud Self-Service Portal	VMware*	vCloud Director*	v1.0	1	Virtual Organization Support	Yes	Categorical	Partitioned Network Sup.	Yes	Categorical
Cluster/Pool Balancing	VMware*	vSphere*	v4.1	1	Automatic Pool Balancing	Yes	Categorical	Policy Based Pool Balance	Yes	Categorical
Access Security Monitoring	VMware*	vShield*	v4.1	1	Policy Access Point	Yes	Categorical	Single Sign-on	Yes	Categorical
Workload Orchestration & Management	VMware*	vCloud Director*	v1.0	1	Centralized Resource Mgmt	Yes	Categorical	Auditing	Yes	Categorical
Security Monitoring	VMware*	vShield*	v4.1	1	Policy Access Point	Yes	Categorical	Single Sign-on	Yes	Categorical

# Intel® Cloud Builders Demand Driven Execution Management

Provides an overview introduction to Execution Management. It shows the Scope of Dynamic Infrastructure Management Capabilities that must be adopted to achieve a real-time infrastructure. It is expected that the organization would adopt these in phases using a top-down process



- Legend:**
- Orchestration – the ability to manage incoming demand based upon defined priorities and real time incoming traffic
  - 1 Demand – the totality of requests for service as manifested through incoming messages, files and documents
  - Demand Management – Policy driven rules that enforce how demand is serviced, based upon priorities set by the business
  - 2 SOA Services- common services provided to the enterprise or Business line to minimize the proliferation of redundant functionality across the application portfolio
  - Execution management – Policy driven rules dictating what services get invoked to meet incoming demand in real time
  - 3 IT Supply Chain- the totality of IT resources available for use in meeting demand
  - Supply management- Policy based rules that define how IT resources are prepared/ configured to
  - 4 IP Traffic Management- Prioritizes traffic flow based upon message type to ensure highest value messages get top priority during heavy network use
  - 5 Supply Provisioning - Guaranteed platform deployment service levels, automation of deployments reduce error, reduce deployment time

VMware or Red Hat Enterprise Virtualization | Policy-based Power Management | Trusted Compute Pools

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