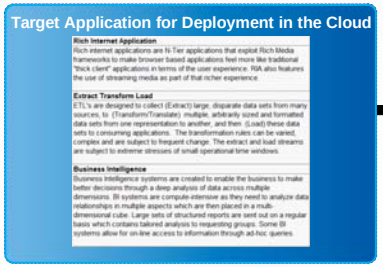
Adaptivity Design Studio: Open Data Center Edition

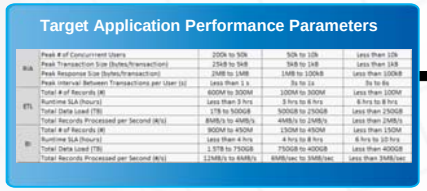
intel

Adaptivity
The IT Blueprint Company™

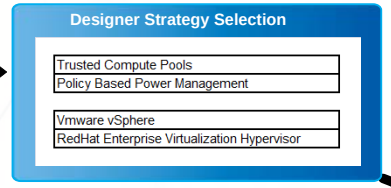
Adaptivity's Design Studio: Open Data Center Edition



1) Use the provided list of functional patterns to select the best fit pattern that describes the target application (e.g. Rich Internet Application). This is used to design the solution in the cloud.



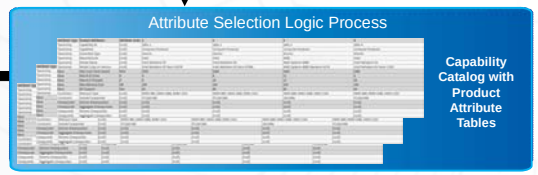
2) Input a series of high-level performance, availability and security requirements for the target application. These input values are used to correctly size the solution.

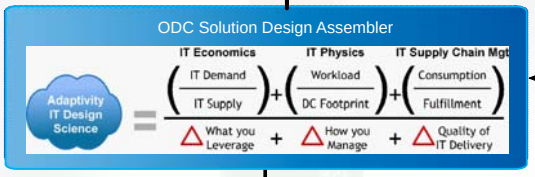


3) Select management strategies that best model the intent of the design of the target application in the cloud space.

Inputs

<feedback>



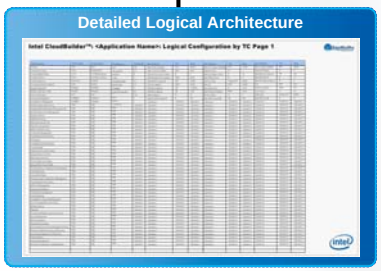


4) The ODC Solution Design Assembler performs the calculations required to determine the unit of work vectors for the logical configurations of the target application. It also generates the bill of materials for physical implementation.

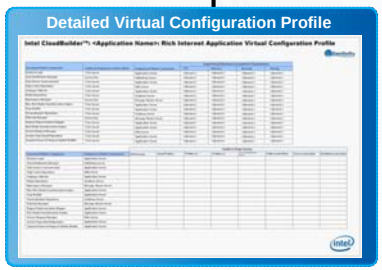
Outputs

Outputs

Outputs



5.1) Detailed Logical Architecture – the details of each required server instance regarding physical and logical locations, compute configurations, storage configurations and considerations regarding network and security are provided here.



5.2) Detailed Virtual Configuration Profile – use this to confirm the logical structure of the application with the engineers and architects and to configure the VM guest images.

5.3) Deployment and Installation Scripts- there is an order to install and configure the resources in the infrastructure. Detailed scripts are provided, that include the tasks and procedures for each selected capability, with temporal ordering and required assumptions.

Adaptivity The IT Blueprint Company™

intel

Overview

Adaptivity's Design Studio: Open Data Center Edition is designed to aid an IT Designer with the planning & implementation of cloud-based applications. The Adaptivity Design Studio: Open Data Center Edition is a wizard-driven software platform that assists the user in making prescriptive design and implementation decisions in building secure and efficient applications in the cloud.

Adaptivity's Design Studio: Open Data Center Edition creates an easy to use design experience through logical design and decision process flows: user selects type(s) of application functional patterns; workload qualities are profiled next; resource management strategies are identified; and virtualization management strategies are validated. This information is assembled into a model that is calculated against Intel configuration logic to determine the most optimal and cost effective solution. The user has the option to adjust inputs and re-calculate or generate a tailored blueprint. The tailored blueprint output is a prescriptive cookbook of architectural, engineering and configurational actions creating an implementation plan that can aid in the deployment of target applications into a cloud ready infrastructure.

Tailored Blueprints with Adaptivity's Design Studio: Open Data Center Edition

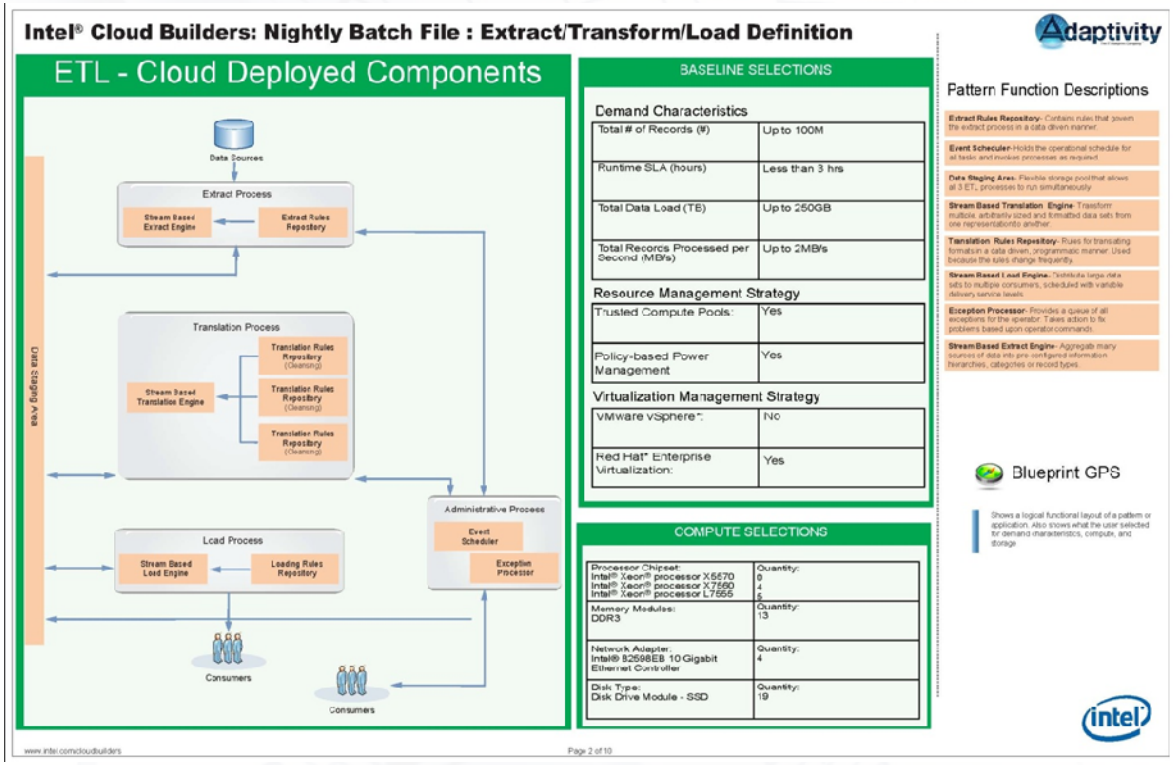
The Adaptivity's Design Studio: Open Data Center Edition is a industry enabling program designed to ease the deployment of cloud infrastructure. The combination of Adaptivity's IT Design Studio Software embedded with Intel's reference architectures and prescriptive cookbooks creates a unique and powerful capability for end users to be prescriptive and precise in building and enhancing their cloud ready infrastructures .

Tailored Blueprints are dynamically generated from this program enabling firms to rapidly design and deploy cloud infrastructures with confidence and agility.

Design Input: Functional Patterns

Adaptivity's Design Studio: Open Data Center Edition allows the selection of functional patterns, which are groups of functional requirements on which the solution is built that help to set the tone for business demand (i.e. how the target application being considered for cloud deployment will be used by the business). Examples of functional patterns are shown below.

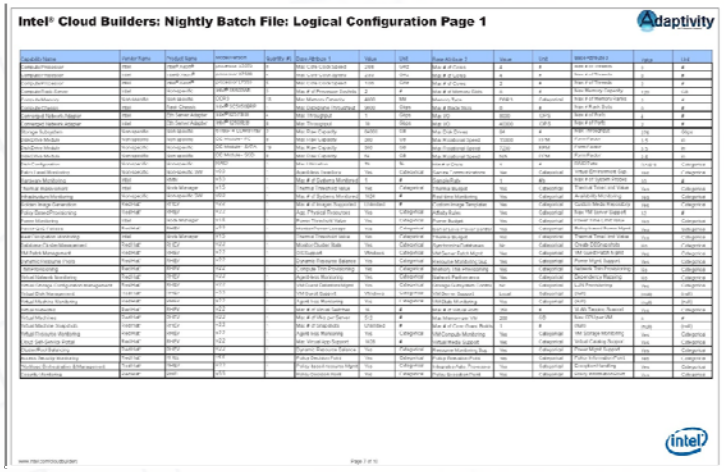
- Rich Internet Applications – RIAs are n-tier applications that exploit rich media frameworks to make browser-based applications feel more like traditional thick client applications in terms of user experience. RIA also features the use of streaming media as part of that richer experience.
- Extract Transform Load Applications – ETLs are designed to collect (extract) large, disparate data sets from many sources, to (transform/translate) multiple, arbitrarily sized and formatted data sets from one representation to another, and then (load) these data sets to consuming applications. The transformation rules can be varied and complex and are subject to frequent change. The extract and load streams are subject to extreme stresses of small operational time windows.
- Business Intelligence Applications – BI systems are created to enable the business to make better decisions through a deep analysis of data across multiple dimensions. BI systems are compute intensive as they need to analyze data relationships in multiple aspects that are then placed in a multi-dimensional cube. Large sets of structured reports are sent out on a regular basis which contain tailored analysis to requesting groups. Some BI systems allow for online access to information through ad-hoc queries.



Additional functional patterns will be added in upcoming months, along with industry and sector specific views of business systems to make it even more prescriptive to your needs.

Design Input: Workload Characteristics

Workload characteristics are used to calculate the necessary unit of work vectors required to develop the output Blueprint sheets, and more specifically, produce a bill of materials in both logical and physical forms to be leveraged by the IT engineer to aid in the deployment of the target application.
Additional performance related demand and workload characteristics will be added in upcoming months, so please continue to visit http://software.intel.com/en-us/articles/intel-cloud-builders-tools-and-resources


Intel® Cloud Builders: Nightly Batch File: Logical Configuration Page 1

Design Input: Resource Management Strategy

Resource management strategies are used to enhance the designed solution output for the target application by providing additional technical capabilities. These capabilities would be required to enable the strategy and are shown on the generated Blueprint sheets. The two initial resource management strategies available for selection include the following.

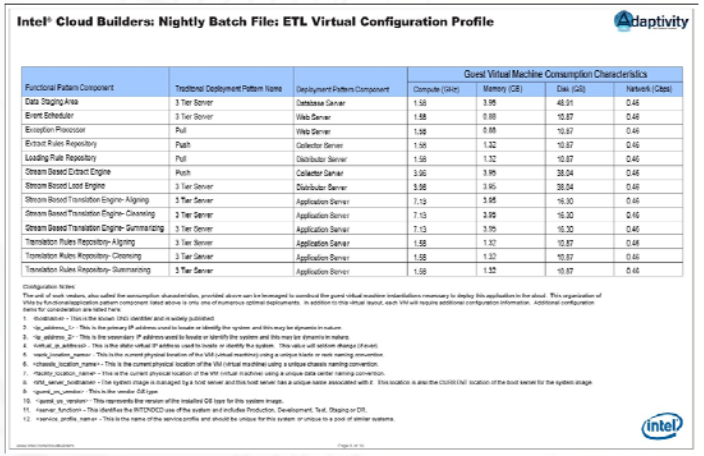
- Trusted Compute Pools
  - Problem Statement: Cloud environments provide tenants with little visibility or control of the level of security and trust provided by cloud infrastructure. Tenants are therefore reticent to place certain workloads into clouds.
  - Solution: Allow tenants of private and public clouds to place workloads into more secure and trusted resource pools by providing a) more robust trusted and secure infrastructure and b) administrative tools that allow reporting and provisioning in that trusted infrastructure.
- Policy Based Power Management
  - Problem Statement: Datacenters require more efficient use of node, group and datacenter server power consumption.
  - Solution: Active datacenter power management framework that allows real-time monitoring and control of power usage at the node, server, rack, group, and datacenter level.

More resource management strategies will be added in the upcoming months, so please visit the website often, www.intel.com/cloudbuilders.

Design Input: Virtualization Management Strategy

The virtualization management strategy is used to help enhance the designed solution output for the target application by providing a virtualization layer to the cloud deployment. Virtualization of the infrastructure is a critical requirement in cloud-based deployments.

VMware vSphere – The VMware vSphere reference architecture includes other components that enable additional capabilities within the cloud. First, vCloud Director provides users of a cloud with a web-based portal for self-service and includes fully automated catalog-based services. Second, vShield contains additional features that provide enhanced security in multi-tenant cloud environments to protect and audit confidential data. These capabilities extend beyond the guest OS image instantiation. Lastly, when coupled with other products, vSphere and vCenter can provide fully automated environment provisioning and monitoring that make it ideally suited for cloud deployments.


Intel® Cloud Builders: Nightly Batch File: ETL Virtual Configuration Profile

Functional Pattern Component	Traditional 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	1.58	3.95	48.91	0.46
Event Scheduler	3 Tier Server	Web Server	1.58	0.88	10.87	0.46
Exception Processor	Pull	Web Server	1.58	0.88	10.87	0.46
Extract Rules Repository	Push	Collector Server	1.58	1.32	10.87	0.46
Loading Rule Repository	Pull	Distributor Server	1.58	1.32	10.87	0.46
Stream Based Extract Engine	Push	Collector Server	3.96	3.95	38.04	0.46
Stream Based Load Engine	3 Tier Server	Distributor Server	3.96	3.95	38.04	0.46
Stream Based Translation Engine- Aligning	3 Tier Server	Application Server	7.13	3.95	16.30	0.46
Stream Based Translation Engine- Cleansing	3 Tier Server	Application Server	7.13	3.95	16.30	0.46
Stream Based Translation Engine- Summarizing	3 Tier Server	Application Server	7.13	3.95	16.30	0.46
Translation Rules Repository- Aligning	3 Tier Server	Application Server	1.58	1.32	10.87	0.46
Translation Rules Repository- Cleansing	3 Tier Server	Application Server	1.58	1.32	10.87	0.46
Translation Rules Repository- Summarizing	3 Tier Server	Application Server	1.58	1.32	10.87	0.46

Red Hat Enterprise Virtualization Hypervisor – The Red Hat Enterprise Virtualization reference architecture includes features and functions that enable open standards based cloud deployments. With Satellite, bare metal provisioning is provided and coupled with additional third-party software that can provide fully automated environment provisioning. A self-service portal for end user management is needed, but this can be addressed through third-party products. RHEV also has a much lower price point than most other virtualization and cloud-based solutions, which makes the barrier to entry much smaller and easier to overcome for most organizations.

There are literally thousands of IT products available that have relevance for use in the cloud, both for cloud consumer and cloud provider. Would you like to see your products included in the Adaptivity's Design Studio: Open Data Center Edition? If so, please contact Adaptivity and become a partner today!

Implementation Output: Tailored Blueprints

Instead of relying on the isolated intuition of architects and engineers to design the solution for cloud enablement, these blueprints are provided to ensure that 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. The Adaptivity Design Studio: Open Data Center Edition works in the following manner:

1. Use the provided list of functional patterns to select the best fit pattern that describes the target application (e.g. Rich Internet Application). This is used to design the solution in the cloud.
2. Input a series of high-level performance, availability, and security requirements for the target application. These input values are used to correctly size the solution.
3. Select management strategies that best model the intent of the design of the target application in the cloud space.
4. The Adaptivity Design Studio: Open Data Center Edition Assembler performs the calculations required to determine the unit of work vectors for the logical configurations of the target application. It also generates the bill of materials for physical implementation in the form of the following.
    - Detailed Logical Architecture – the details of each required server instance regarding physical and logical locations, compute configurations, storage configurations, and considerations regarding network and security are provided here.
    - Detailed Virtual Configuration Profile – use this to confirm the logical structure of the application with the engineers and architects and to configure the VM guest images.

The Adaptivity Design Studio: Open Data Center Edition

Intel's Open Data Center initiative is a comprehensive engagement with ecosystem and end customers to help speed delivery of technology that enables more secure, efficient, and simplified cloud data centers that preserve IT flexibility and choice. The initiative broadly spans Intel's end user engagements, product and technology development and work with the vendor ecosystem to deliver easy deployable and proven cloud solution on Intel Architecture. Over time, the results of this initiative will deepen the robust offerings along the three key vectors: more secure, efficient, and simplified. Adaptivity will capitalize on the growing, evolving knowledge capital from Intel's Open Data Center initiative and use it to build an expanding, 'living', portfolio of Adaptivity Design Studio capabilities and offerings. This is the rationale to consistently visit the Intel Cloud Builders website to track those developments that may be directly relevant to your organization (http://software.intel.com/en-us/articles/intel-cloud-builders-open-data-center-initiative/).

About Intel® Cloud Builders

Intel has multi-year vision for cloud computing called Cloud Vision 2015. In this vision cloud data centers should be seamlessly and securely connected or federated, should be fully automated-provisioning resources with little or no human interaction, and clouds should be client-aware, providing secure access and optimal experience across a range of devices. To truly realize the promise of cloud computing, Intel believes that open, interoperable solutions that embrace standards are essential.

The Intel Cloud Builders program brings together industry leaders in systems and software solutions to provide practical guidance on how to deploy, maintain, and optimize a cloud infrastructure. This guidance is available today in the form of detailed reference architectures that can help you improve data center security and efficiency, while simplifying management and operations. Intel Cloud Builders also serves as a portal for information on cloud research and as a community where solution architects can consult on best practices for adoption and enhancement of cloud solutions

About Adaptivity

Adaptivity is the IT Blueprint Company.

Adaptivity was founded in 2007 to help companies address the complexities associated with IT design and implementation. Adaptivity's Blueprint 4IT Lifecycle Suite™ enables intelligent IT design decisions to be integrated into repeatable actions across the technology build and deployment lifecycle. This is accomplished by providing access to a content rich repository consisting of a blueprint library, knowledge database and data contributions from ecosystem partners.

Blueprint 4IT Lifecycle Suite™ enables companies to plan and implement with the precision needed to ensure desired system outcomes are achieved. Whether seeking to rationalize an IT portfolio or design a cloud program companies use our tailored blueprints to optimize legacy infrastructure operations and accelerate the delivery of new IT services.