Cloud Customer Architecture for e-Commerce

http://www.cloud-council.org/deliverables/cloud-customer-architecture-for-ecommerce.htm

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The Cloud Standards Customer Council

**THE Customer’s Voice for Cloud Standards!**

- Provide customer-led guidance to multiple cloud standards-defining bodies
- Establishing criteria for open standards based cloud computing

2016 Projects
- Prac Guide to Hybrid Cloud Computing
- Public Cloud Service Agreements, V2
- Cloud Security Standards, V2
- IoT Cloud Reference Architecture
- **Commerce Cloud Reference Architecture**
- More

2015 Deliverables
- Web App Hosting Architecture
- Mobile Cloud Architecture
- Big Data Cloud Architecture
- Security for Cloud Computing V2
- Practical Guide to Cloud SLAs V2
- Practical Guide to PaaS

2013/2014 Deliverables
- Convergence of SoMoClo
- Analysis of Public Cloud SLAs
- Cloud Security Standards
- Migrating Apps to Public Cloud Services
- Social Business in the Cloud
- Big Data in the Cloud
- Practical Guide to Cloud Computing V2
- Migrating Apps: Performance Rqmnts
- Cloud Interoperability/Portability

2011/2012 Deliverables
- Practical Guide to Cloud Computing
- Practical Guide to Cloud SLAs
- Security for Cloud Computing
- Impact of Cloud on Healthcare

600+ Organizations participating

http://cloud-council.org
This talk introduces the Cloud Customer Architecture for e-Commerce which is recently published. We show how to implement this architecture using Open Source.

- What are Cloud Solution Architectures?
- Candidate Architectures
- e-Commerce Cloud Architecture
- Open source projects that can be used to support these
- CSCC’s Cloud Reference Architecture series
Cloud Customer Reference Architectures are...
- straightforward description of elements needed to implement particular application solutions using cloud infrastructure, cloud platforms, cloud software, and cloud services
- deployment neutral (public, private, hybrid) & implementable via IaaS, PaaS, SaaS
- general purpose reusable architectures as well as industry specific architectures
- vendor neutral & open

Important because they...
- enable cloud customers to understand unique features & advantages of using cloud computing
- bridge gap between understanding cloud customer needs and cloud provider offerings
- provide practical guidance on how common business applications can be realized from a cloud customer role perspective
- are stable anchors in a rapidly innovating cloud landscape
- save time, effort & money: be more productive

Useful when...
- those planning to build cloud based applications
- talking with cloud providers about their offerings
- understanding of the common elements and relationships in relevant solutions

Target audience:
- those planning on building/purchasing cloud based applications
- developers, architects, managers

Consistent with ISO/IEC 17789 International Standard Cloud Computing Reference Architecture
Cloud Customer Reference Architecture Candidates

General
• IoT (published 02/16)
• Big Data and Analytics (published 12/15)
• Mobile (published 5/15)
• Web App Hosting (published 12/14)
• DevOps
• Hybrid Security
• Hybrid Integration
• Social

Industry
• e-Commerce
• Financial
• Travel
• Healthcare
• Gaming
• Public Sector
• Telco

Published by CSCC 9/16, Review today!
Cloud Customer Reference Architecture for e-Commerce: A high level view

PUBLIC NETWORK
- e-COMMERCE USER
- CHANNEL

PROVIDER CLOUD
- GATEWAY
- e-COMMERCE APPLICATIONS
- PAYMENT
- SUPPLY CHAIN & LOGISTICS MANAGEMENT
- DATA SERVICE
- DISTRIBUTED ORDER MANAGEMENT
- MERCHANDISING
- BUSINESS PERFORMANCE
- MARKETING
- CUSTOMER CARE
- WAREHOUSE MANAGEMENT
- COMMERCE ANALYTICS

ENTERPRISE NETWORK
- BUSINESS USER
- INTERNAL CHANNEL
- TRANSFORMATION & CONNECTIVITY
- ENTERPRISE USER DIRECTORY
- ENTERPRISE APPLICATIONS
- ENTERPRISE DATA

LEGEND
- Application component
- User
- Infrastructure services
- Management
- Data store
- Analytics
- Device capabilities
- Security
- Scalable infrastructure
Cloud Customer Reference Architecture for e-Commerce with Details
Cloud Customer Reference Architecture for e-Commerce

An e-Commerce User is a customer who uses various channels to access the commerce solutions on the cloud provider platform or enterprise network.
Cloud Customer Reference Architecture for e-Commerce

Channel retailing solutions aim to provide a seamless, personalized brand experience whether the customer shops on the Web, over the phone, using a mobile device or all of the above.
Cloud Customer Reference Architecture for e-Commerce

Services needed to allow data to flow safely from the internet into the provider cloud and into the enterprise. Edge Services also support end user applications.
The Gateway allows smart devices to communicate with in-store networks to search or shop and pay. This can have the same capabilities and requirements for security and scalable messaging as a mobile gateway or IoT transformation and connectivity gateway as referred to in IoT architecture.
Cloud Customer Reference Architecture for e-Commerce

e-Commerce Applications provide consumers and businesses a platform to buy/sell goods and services over the Internet.
A rich, meaningful digital experience is the key to engaging customers in today's integrated digital world.
Supports customer care across the entire transaction lifecycle and all commerce channels where customer care personnel supporting the user can see behaviors of a customer in more than one channel.
Payment processing and payment gateway are two different functions. Payment Gateways are always needed for internet commerce. For internet merchants both payment processing and payment gateways are required. Many payment processors also offer payment gateway services – selecting a single provider can simplify issue resolution if there is an outage or dispute.
Cloud Customer Reference Architecture for e-Commerce

Supports inventory, order processing and order visibility. It orchestrates the workflow of orders from distribution centres/warehouses, suppliers, third-party vendors for direct fulfilment and stores. Distributed Order Management can help deliver a superior customer experience by enabling it to execute and coordinate order fulfilment processes across extended supply chain network.
Enables efficient management of warehouse operations. Combining a warehouse management system with a wireless network, mobile computers, radio frequency identification (RFID) technology, voice picking applications, and barcoding can help fully extend your enterprise to the mobile worker, while increasing operational efficiencies and enhancing your customer service.
Cloud Customer Reference Architecture for e-Commerce

PUBLIC NETWORK
- Provider Cloud
- Gateway
- Payment Processing
- Payment Gateway

PROVIDER CLOUD
- Distributed Order Management
- Supply Chain Management
- Warehouse Management
- Pricing Management & Optimization

ENTERPRISE NETWORK
- Data Service
- Business Performance
- Business Customer Reference Architecture for e-Commerce

INTERNAL CHANNEL
- Enterprise User Directory
- Reference Data
- Transactional Data
- Operation Master Data

SUPPLY CHAIN & LOGISTICS MANAGEMENT
- Supply Chain Management
- Product Lifecycle Management & Manufacturing
- Transportation Management & Optimization

ENSURES SYSTEMS TO PLAN AND MANAGE THE PRODUCTS AND LIFECYCLE, SUPPLY NETWORK, INVENTORY INCLUDING REPLENISHMENTS, DISTRIBUTION STRATEGIES, PARTNER ALLIANCES AND RELATED ANALYTICS. LOGISTICS MANAGEMENT HELPS MANAGE THE INTERNAL LOGISTICS FOR PURCHASING, PRODUCTION, WAREHOUSING, AND TRANSPORTATION WITHIN THE ENTERPRISE TO MAKE SURE THE PRODUCTS ARE AVAILABLE TO END CUSTOMERS IN THE MOST EFFICIENT AND COST EFFECTIVE WAY POSSIBLE.
Cloud Customer Reference Architecture for e-Commerce

Merchandising is marketing the right merchandise or service at the right place, at the right time, in the right quantities, and at the right price with the goals of optimization of margins, gross revenue, or shelf life.
Cloud Customer Reference Architecture for e-Commerce

Marketing supports customer experiences from product exploration to purchase decision to transaction completion with personalized offers, content and product presentations via a variety of communication channels including traditional, direct mail, email as well as emerging mobile and social media.
Cloud Customer Reference Architecture for e-Commerce

PUBLIC NETWORK

GATEWAY

EDGE SERVICES

EDUCATION APPLICATIONS

Hard Name System
Content Delivery Network
Firewall
Load Balancer

WEB SERVICES

Mobile Digital & Store
Product Look & Personalization
Catalog
Order Capture
Marketplace

DISTRIBUTED ORDER MANAGEMENT

Payment Processing
Payment Gateway

Order Management & Orchestration
Global Inventory Visibility
Returns Management

SUPPLY CHAIN & LOGISTICS MANAGEMENT

Supply Chain Management
Product Lifecycle Management & Manufacturing
Sourcing & Procurement
Supplier & Partner Data Communications
Transnational Event Registry
Logistics Management & Optimization
Transportation Management & Optimization

MARKETING

Marketing Resource Management
Campaign Management
Real Time Recommendations

MERCHANDISE ANALYTICS

Digital Analytics
Cross Channel Analytics (Predictive, Cognitive & Prescriptive)
Social Commerce, Sentiment Analysis
Merchandise Analytics & Optimization

BUSINESS PERFORMANCE

Enterprise Security Connectivity
Extract Transform & Load

TRANSFORMATION & CONNECTIVITY

Data Service

Data Service provides the ability to access data and replicate and synchronize the data. Data services such as weather analytics service will help in adjusting merchandise inventory and also optimize transportation. Other data services can be used to generate and aggregate the reports from the enterprise data and applications via business performance components in the provider cloud.

CUSTOMER CARE

CRM
Loyalty Management

SECURITY

LEGEND

Application component
User
Infrastructure services
Management
Data store
Analytics
Device capabilities
Security
Scalable infrastructure
Business Performance enables describing and understanding the alerts, metrics and key performance indicators (KPIs) an organization uses to monitor day-to-day commerce activity, keep track of progress against defined goals and adjust offerings across commerce channels in response to market demand.
Cloud Customer Reference Architecture for e-Commerce

Commerce Analytics enables optimization of the shopper's journey and improves the sales & revenue for the business. Various types of analytics are used to achieve this, such as digital analytics, cross channel analytics, sentiment analytics, social analytics & sentiments and merchandise analytics.
Transformation and connectivity enables secure connections to enterprise systems with the ability to filter, aggregate, modify, or reformat data as needed. Data transformation is often required when data doesn’t fit enterprise applications.
Cloud Customer Reference Architecture for e-Commerce

Internal Channel retailing solutions aim to provide an interactive experience whether the customer shops in the store, over the phone with CSR or using web based call center. Not only can you create a next-generation Web channel, you can leverage the Web to improve revenues and customer service in all channels.
Cloud Customer Reference Architecture for e-Commerce

Enterprise User Directory provides access to the user profiles for both the cloud users and the enterprise users. A user profile provides a login account and lists the resources (data sets, APIs, and other services) that the individual is authorized to access. Security services and edge services use this to drive access to the enterprise network, enterprise services, or enterprise-specific cloud provider services.
Cloud Customer Reference Architecture for e-Commerce
Scenario – Digital transformation of retailer’s commerce enabled by cloud

Runtime Flow
1. The customer browses information about new needed garment.
2. Merchant introduces new design in their Product catalog which are available on various channels.
3. The customer also gets an email from the Merchant about the new garment design.
4. Based on the customer profile three different variations of the product are shown on the site.
5. The customer uses a special promotion offered to him as a preferred customer.
6. The customer places their order (payment processing occurs) using the e-Commerce Applications & purchase order info goes to Distributed Order Management system.
7. The Merchant fulfills the order, ships to the customer and sends an email to the customer with tracking info.
8. The merchant also checks the inventory in order to replenish from their contract supplier by using the warehouse management.
9. The merchant sends out appropriate purchase orders, drop ship requests etc.
10. Social analytics survey suggests that the new variation of the product is more popular.
11. Information passed to Merchandise inventory for further analytics and optimization.
Call to Action

- **Join the CSCC Now!**
  - To have an impact on customer use case based standards requirements
  - To learn about all Cloud Standards within one organization
  - To help define the CSCC’s future roadmap
  - Membership is free & easy: [http://www.cloud-council.org/become-a-member](http://www.cloud-council.org/become-a-member)

- **Get Involved!**
  - Join one or more of the CSCC Working Groups
    [http://www.cloud-council.org/workinggroups](http://www.cloud-council.org/workinggroups)

- **Leverage CSCC Collateral**
  - Visit [http://www.cloud-council.org/resource-hub](http://www.cloud-council.org/resource-hub)
Thank You