



Moving Software Products to the Cloud

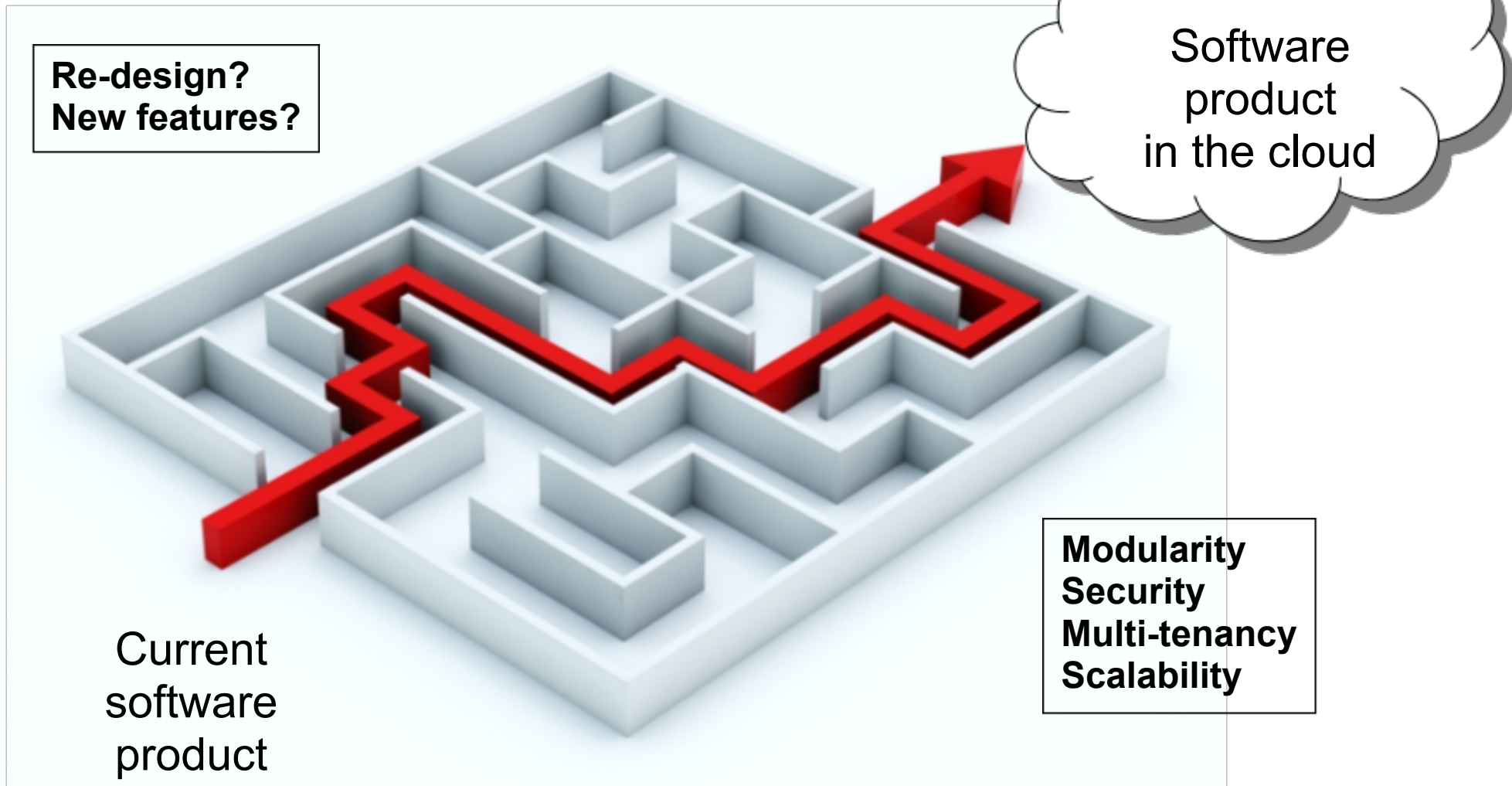
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A Business Unit of CorSource Technology Group,
Inc.

How can an ISV most effectively move its software product to the cloud?



Note: ISV – Independent Software Vendor

Key Benefits of Leveraging the Cloud

- **Agility**
 - Addresses over-provisioning (waste of capital)
 - Addresses under-provisioning (waste of users)
- **Lower cost of entry**
 - Move from CapEx to OpEx
 - Pay only for actual resources used
- **On-demand system sizing**
 - Flexible sizing and scaling of systems
 - Ensures SLAs can be met

Key Questions to Consider

How will this impact my software architecture?

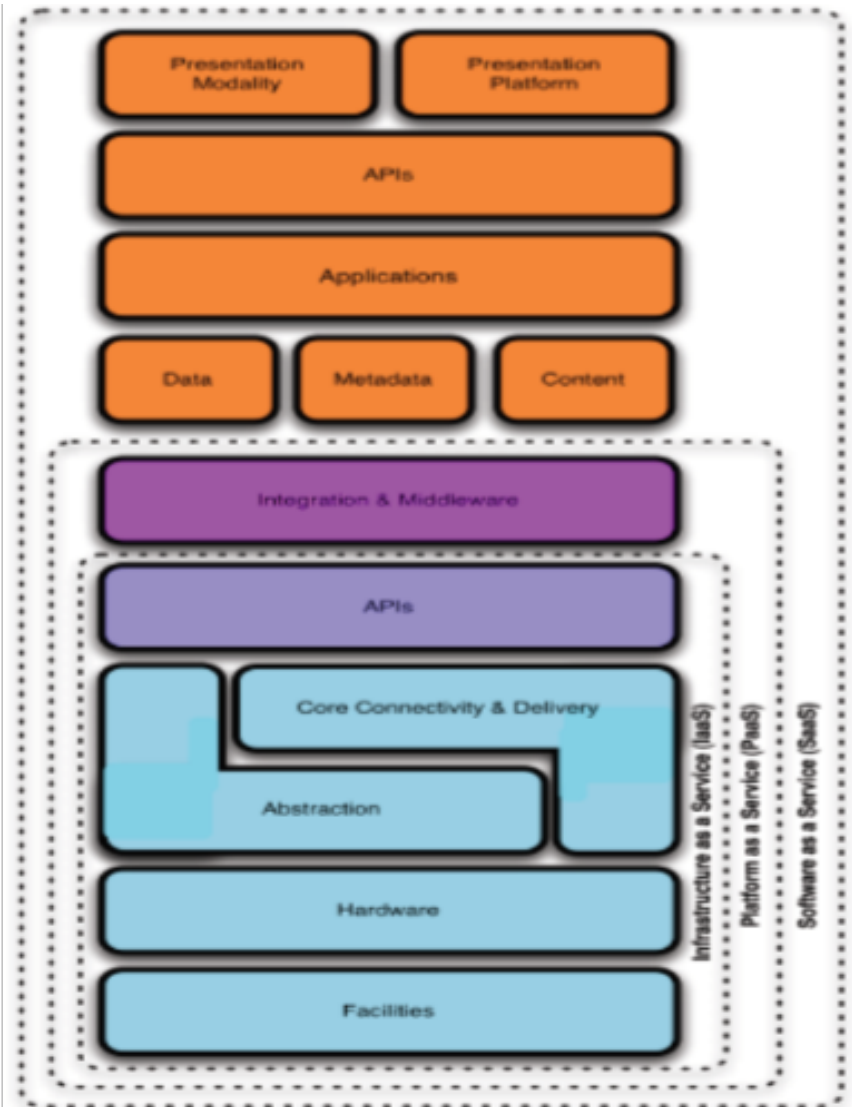
What cloud services are available?

Which of the cloud services make sense for my product to leverage?

How will I deploy my product to the cloud?

How will I get from here to there?

Cloud Reference Model *



Software as a Service (SaaS)

- ISV on-demand software product
- Leverages cloud services

Platform as a Service (PaaS)

- Application dev environment
- Middleware
- Database

Infrastructure as a Service (IaaS)

- Provisioning of processing, storage and networks

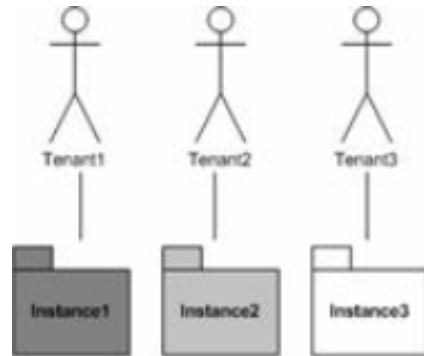
* Reference: Cloud Security Alliance "Security Guidance for Critical Areas of Focus in Cloud Computing v2.1"

Key Factors for Leveraging the Cloud

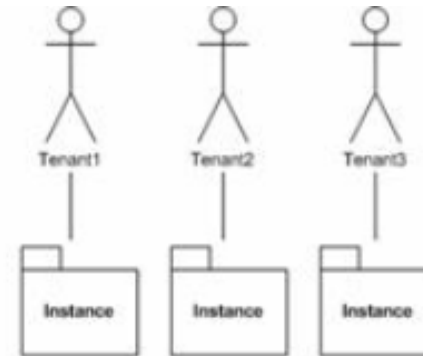
- SaaS enablement of current software product
 - Modular
 - Multi-tenant efficient
 - Scalable
 - Secure
- Identification of cloud services to leverage
 - PaaS, e.g., Google AppEngine, Windows Azure
 - IaaS, e.g., OpSource, Amazon EC2
- Design and deployment of new cloud product
 - Private cloud
 - Public cloud
 - Hybrid cloud

SaaS Enablement - Levels of SaaS Maturity

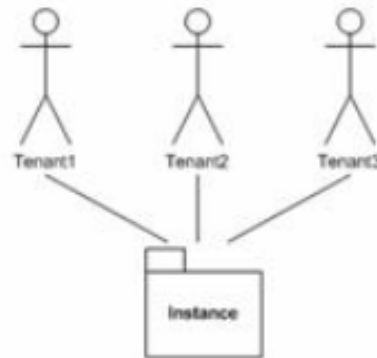
1. Internet-accessible
One instance per customer



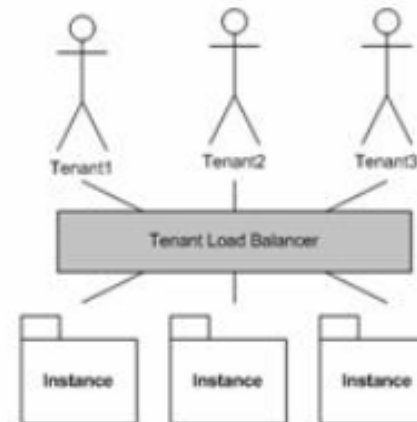
2. Configurable per customer



3. Multi-tenant
efficient



4. Fully scalable,
configurable, multi-tenant



SaaS Software Architecture

- **Tenant-Configurable (Metadata-driven)**

- Presentation: branding
- Business logic: workflow
- Security: user access control
- Database: client-specific extensions

- **Multi-Tenant Efficient**

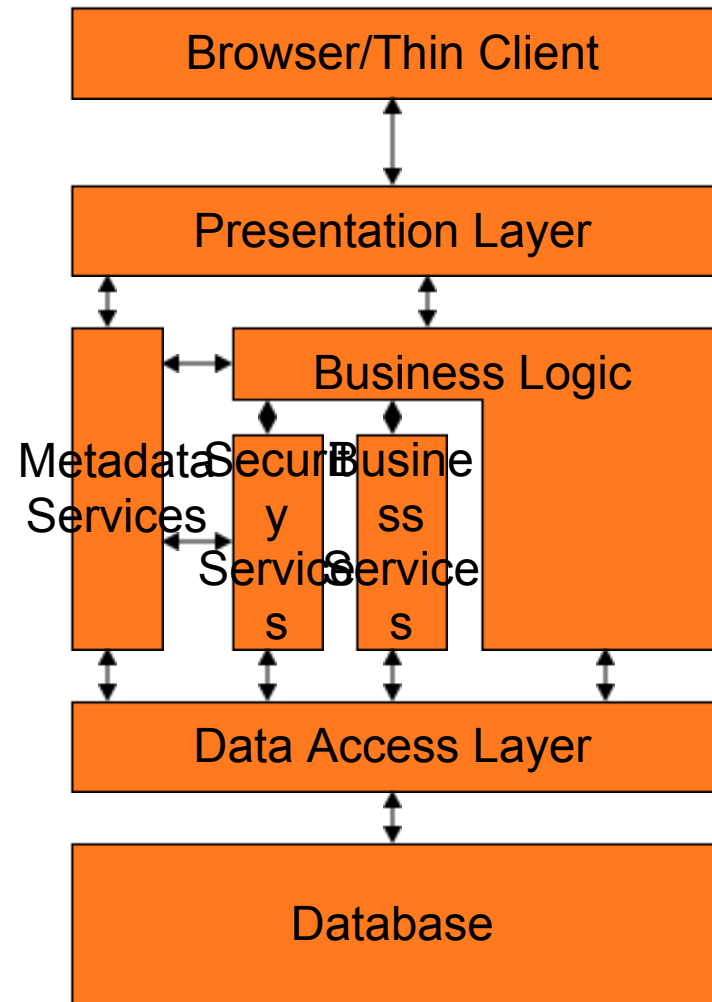
- Business Logic: threaded and pooled
- Security: shared but separate
- Database: common but isolated

- **Scalable**

- Business Logic: stateless, pooled, etc.
- Data Access: cached, pooled, asynchronous
- Database: partitioned

- **Operable (Business Services)**

- OSS: provisioning, monitoring, etc.
- BSS: billing, customer care, etc.



Identification of Cloud Services

Service Layer	Services Provided (examples)	Products (examples)
PaaS	Integrated development env Middleware Database Messaging	Google AppEngine Windows Azure Force.Com
IaaS	Servers Storage Networks	OpSource On-Demand OpSource Cloud Amazon EC2

Be careful about locking yourself into proprietary APIs.

Deployment of Cloud Product

- **Private Cloud**

- ISV manages internal cloud infrastructure
- ISV outsources cloud infrastructure to provider of private cloud services (e.g., OpSource On-Demand)

- **Public Cloud**

- Generally available cloud services (e.g., OpSource Cloud)

- **Hybrid Cloud**

- Infrastructure comprised of two or more clouds (public or private)
- Clouds must be bound together for data and application portability

Moving to the Cloud Dilemma

Current Product Demand

- Current product revenue growth
- New feature releases
- Support

Cloud Benefits

- Agility
- Lower cost of entry
- On-demand system sizing



How can you successfully address both?

Key Development Questions

How can you best leverage your core development team?



What is your core development team's expertise?

Outsourcing Cloud Development - Benefits

- **Continue to service current customer base with your product experts**
 - Product enhancements
 - Support
- **Leverage experience of outsourced team**
 - SaaS architecture design and development experience
 - Understanding and experience with cloud services and products
 - Manage to deliverables vs. day-to-day management of individual team members
- **Create and execute new testing scenarios**
 - Functional testing, regression testing, automated testing
 - Multi-tenant testing
 - Performance and throughput testing with cloud services
- **One-time development cost (capital expense)**
 - No need to build up internal team

Keys to Successful Outsourcing

**Executive-level management champion
focused on success of outsourcing**

**Experienced outsourcing partner with:
Value added onshore presence
Strong trusting relationship**

**Strong management processes:
Clearly defined roles and responsibilities
Well-defined communications processes
Risk-management throughout the engagement
Well-managed requirements**

**Continuous integration with current
product development**

Achieve Balance through Outsourcing

Current Product Demand

- Current product revenue growth
- New feature releases
- Support

Cloud Benefits

- Agility
- Lower cost of entry
- On-demand system sizing



Summary of Moving to the Cloud

Key Step	Key Elements of Step
Determine cloud architecture	<ul style="list-style-type: none"> • How far down the stack should you go • PaaS development environment? • Private cloud, public cloud or hybrid cloud? • Level of SaaS maturity needed
Identify cloud services to use	<ul style="list-style-type: none"> • PaaS services • IaaS services
Develop overall project plan, including cloud services plan	<ul style="list-style-type: none"> • Phases and deliverables • Resources, schedule, cost • Cloud services contracts and implementations
SaaS enable software product	<ul style="list-style-type: none"> • Current product SaaS suitability assessment • Architecture considerations • Integration with cloud services
Deploy cloud product	<ul style="list-style-type: none"> • Private cloud, public cloud or hybrid cloud
Plan and provide existing product support	<ul style="list-style-type: none"> • Minimum necessary to keep product competitive • Balance resources between existing product and cloud project



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Agilis Solutions provides software engineering, maintenance and testing services for companies who build software, primarily Independent Software Vendors serving the high technology, security, healthcare, financial, distribution, transportation, telecommunications, and manufacturing industries.

Our unique blended delivery model combines locally based, highly trained project managers from America with a world-class software development center located in Vietnam.

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YOU



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