

**BusinessConnect and SolutionsConnect**

It's time to make bold moves.

# Best practice in building on premise cloud

Grant Thomson

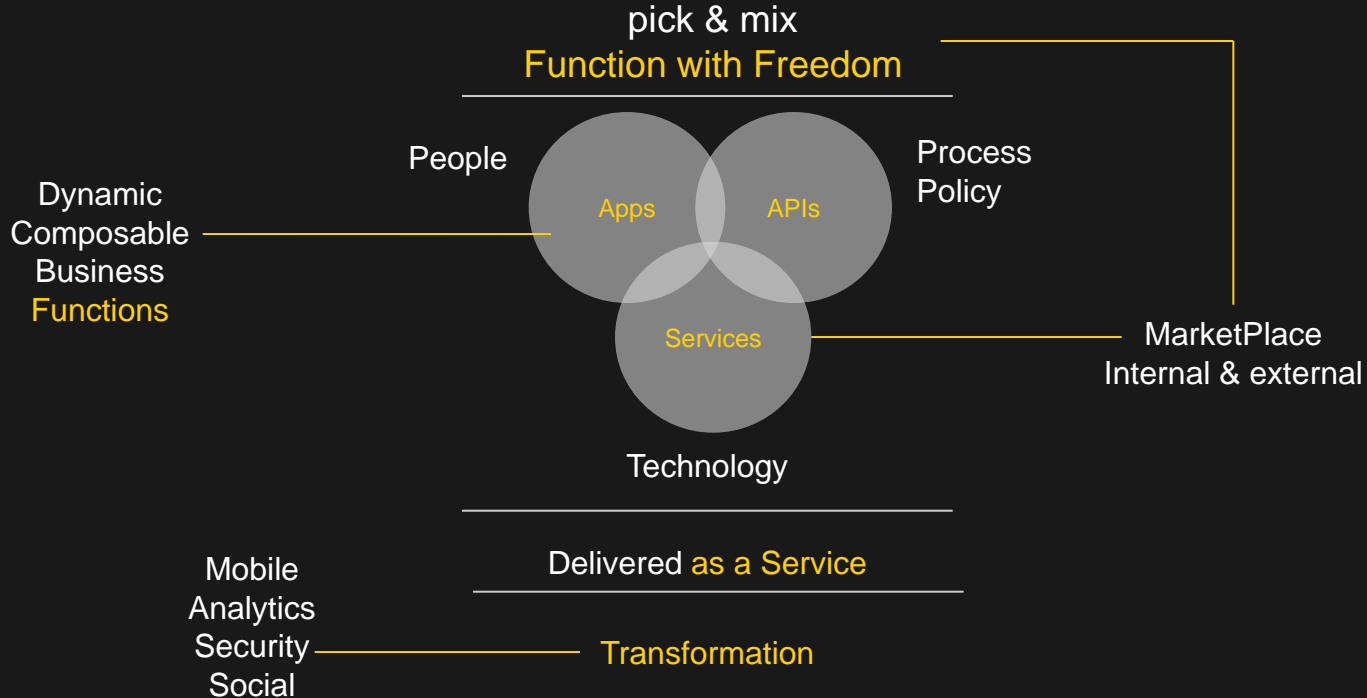
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Cloud CTO, IBM Australia & New Zealand



# Cloud Computing is Function with Freedom

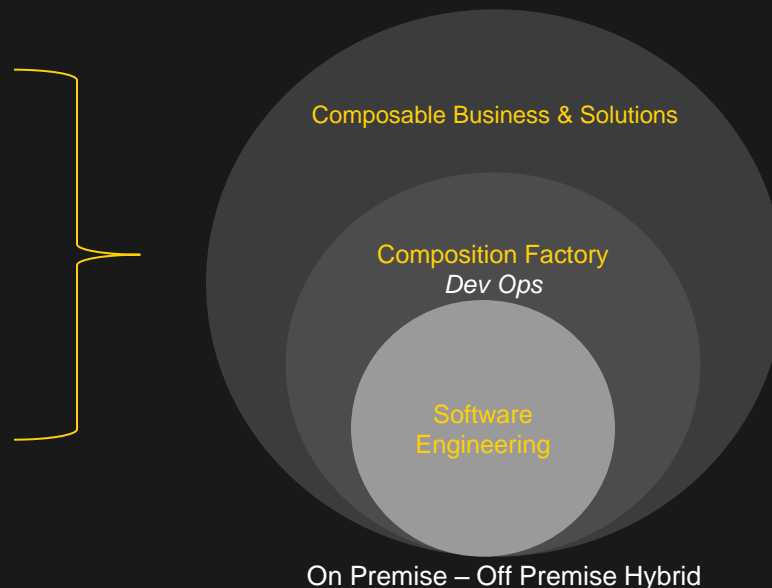


# Cloud Computing Requires a New Organisational Model

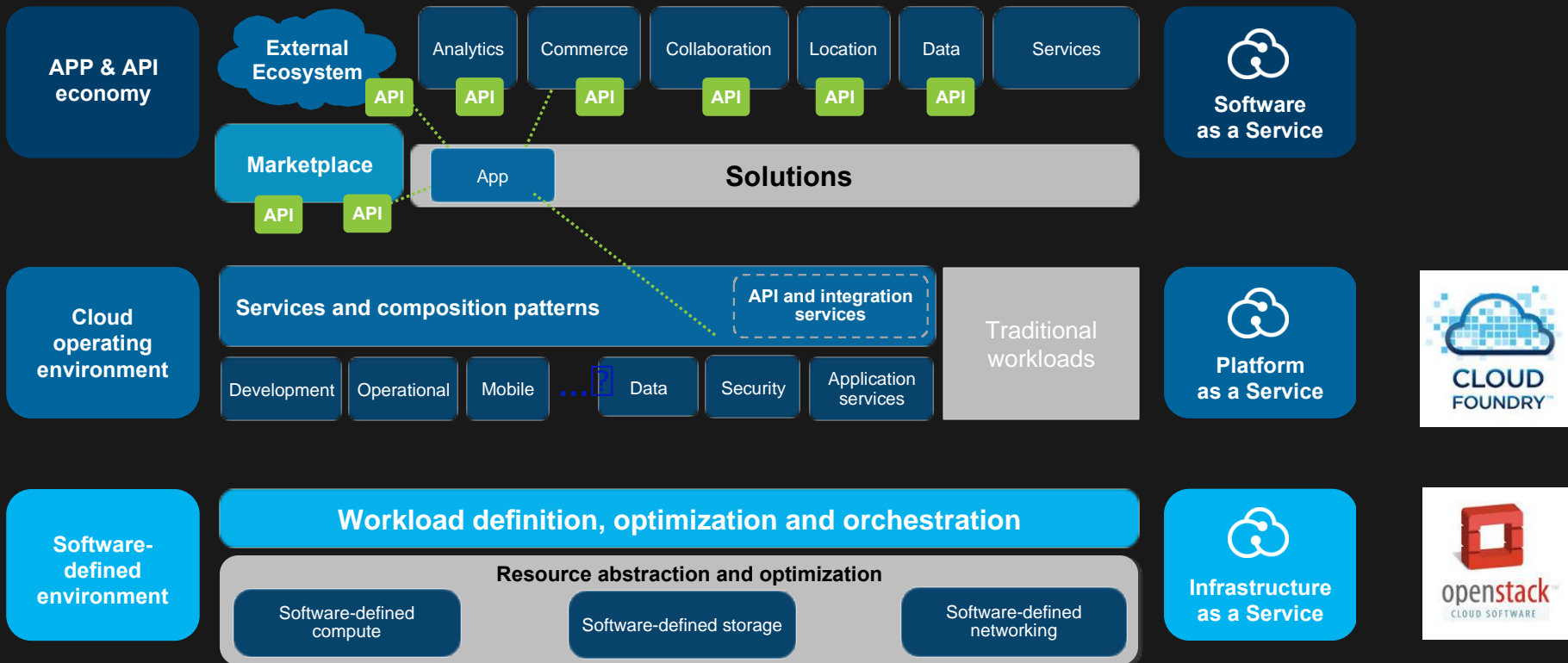
IBM Cloud Marketplace  
pick & mix **Components as a Service**

aS aa S	Application Services	Software aaS
aS aa S	Application Platform Services	Via APPs & APIs
IaaS	Infrastructure Services	Hardware

The new Business & IT  
**Solutions as a Service**



# The Next-generation Cloud Computing Platform



# Defining Cloud Models

## The National Institute of Standards and Technology (NIST)

**Private cloud** is a cloud infrastructure

- provisioned for **exclusive use** by a single organization, comprising multiple consumers
- may be owned, managed and operated by the organization, a third party or some combination of them
- may exist **on or off premises**

**Public cloud** is a cloud infrastructure

- provisioned for **open use by the general public**
- may be owned, managed and operated by one or more organizations, a third party or some combination of them,
- may exist **on or off premises**

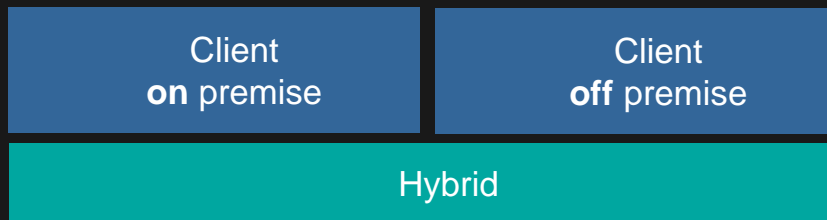
**Hybrid cloud** is a composition of **two or more cloud infrastructures**

- (usually public and private) that remain unique entities, bound together by technology that enables data and application portability

# Cloud: For What?

Know the context. This is a “Chasm of Confusion”

“A cloud”  
for what cloud  
computing  
Location



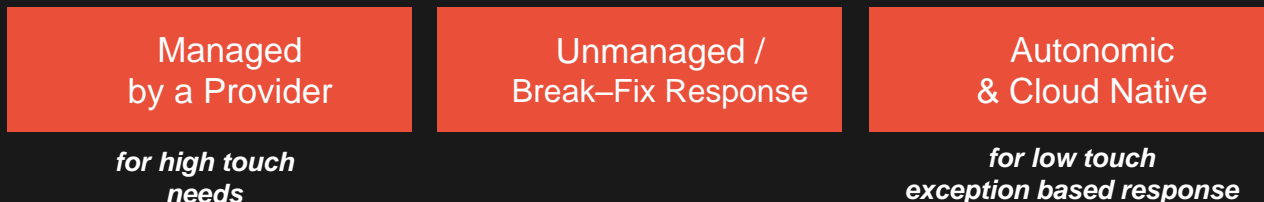
Public – Private  
is often also used to  
indicate location

e.g. a client can have a Private use cloud in SoftLayer (off premise)  
e.g. a client/MSP can have a Public use cloud on-premise

For what  
Purpose



Fit for what  
Workload Needs



Needs can vary  
per aaS layer  
& component  
non functional requirements

*for high touch  
needs*

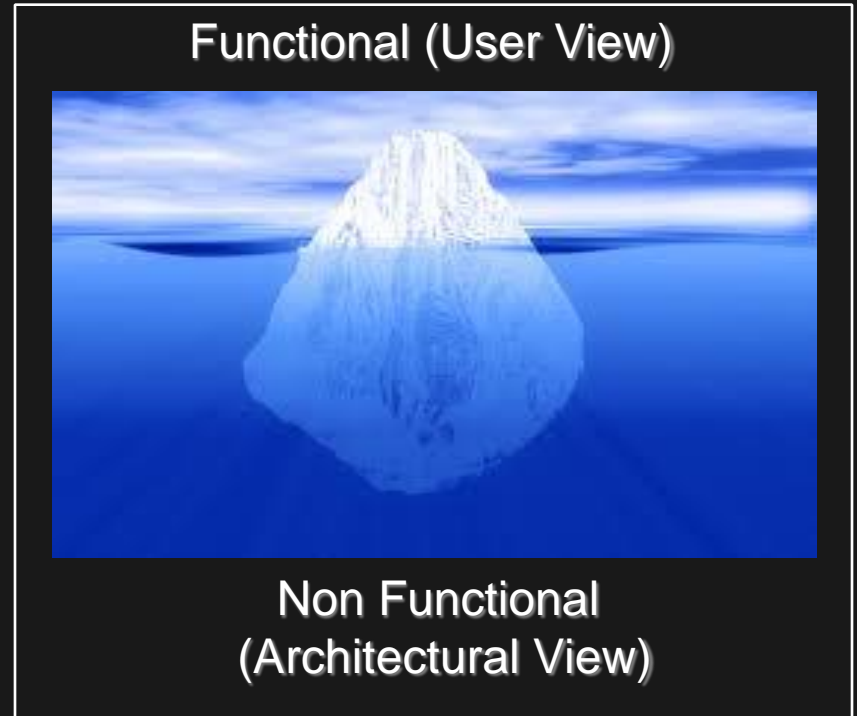
*for low touch  
exception based response*

# Solving Non Functional Requirements

Enabling legacy, cloud enabled and cloud native hybrid environments

## Key Factors (options & constraints)

- Non functional requirements such as **security, privacy, integrity, resilience, performance, workload & data placement, availability (e.g. failover & DR) & service assurance**
- Workload middleware, database, platform & application architecture (e.g. n tier)
  - Legacy
  - Cloud Enabled
  - Cloud Native
- Design patterns such as
  - Multi-tenancy model
  - Session & State model
  - Scaling model
  - Integration model
  - "Chatty protocols" (back and forth)
- Integration requirements
- Network latency
- User locations and overall topology



# Workload-data Placement

Compliance to regulations & policies for geo-location distributed cloud services

## Factors

- Client workload & data placement **security, privacy and performance requirements**
- “**Location**” context is country, jurisdiction, client and IBM-SoftLayer PoDs
- “**Premise**” context is on premise or secure off premise
- “**Resources**” being workloads & data
- “**Segregation**” can be shared (multi-tenant) or **dedicated** (single-tenant) resources
  - per stack layer & components
- “**Segregation**” can be via **triple Network Architecture** for internet, private & management network per server
- **Full auditability** & traceability of data





# Building On-Premise Private Cloud

Infrastructure impacts on efficiency, resiliency and responsiveness

## IBM offers unique infrastructure capabilities to rapidly create value

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### ▪ Consolidate all workloads

- Power Solution Editions for AIX, i, Linux



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### ▪ Automate Cloud and Enable Hybrid with SDE

- zEnterprise & Linux on System z
- SmartCloud Entry with OpenStack
- Platform Computing and GPFS
- Platform Computing Cloud Services



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### ▪ Optimize Storage for Cloud Delivery

- Storwize Family
- XIV for Cloud



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### ▪ Speed Deployment and Simplify Management

- PureFlex and PureApplication System



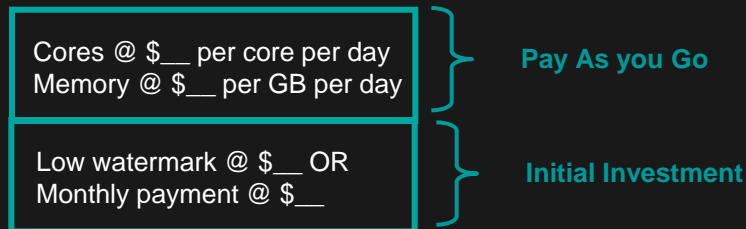
# Utility and Advanced Placement Offerings

Allows you to own your on premise infrastructure but only pay for what you use

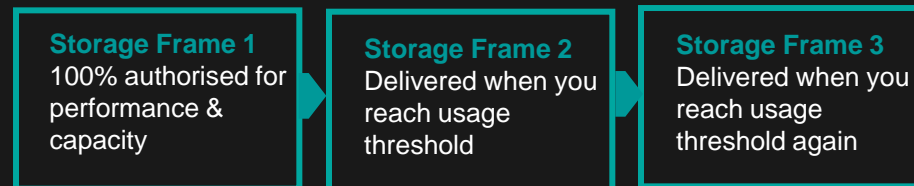
## Business Benefits

- You own and manage IBM's industry leading infrastructure
- Reduced cost of acquiring <-- reduced up front acquisition costs
- Flexibility to grow capacity <-- full power of system available (no compromises)
- Predictable cost using a pay-as-you-go model <-- better aligning costs to your business model

## Power & zEnterprise Utility Offering



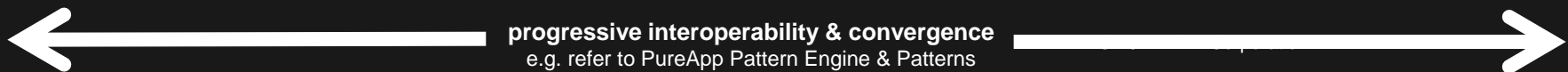
## Storage Advanced Placement Offering



# IBM Cloud IaaS Portfolio

Enabling complementary solutions to match location, purpose & workload needs

Integrated System <i>for on premise</i>	SW & Prof. Services <i>for on premise</i>	Cloud Enabled (aaS) <i>for high touch needs</i>	Cloud (aaS) <i>for low touch needs</i>
Expert Integrated System	Modular Cloud Builder	Client off premise Cloud Enabled DC SO	Client off premise Premium IaaS+PaaS
<b>IBM PureApplication System</b>	<b>Private Modular Cloud</b>	<b>Cloud Managed Services</b>	
<ul style="list-style-type: none"> <li>• Pre integrated application system providing platform services</li> <li>• Rapid and reliable provisioning of optimized pattern-based applications</li> <li>• Automated monitoring and management of application</li> <li>• 200+ traditional application, middleware &amp; database provisioning patterns</li> </ul>	<ul style="list-style-type: none"> <li>• Out of the box private cloud builder (server, storage &amp; network).</li> <li>• Option of VMWare, OpenStack and IBM SmartCloud Orchestrator cloud management software stacks</li> <li>• HW agnostic. IBM PureFlex, SoftLayer, Client</li> <li>• 200+ traditional application, middleware &amp; database provisioning patterns</li> </ul>	<ul style="list-style-type: none"> <li>• Suited to legacy and traditional 3 Tier application models, (App, MW and DB)</li> <li>• Requires a highly built out and resilient infrastructure &amp; operational environment</li> <li>• Typical applications being SAP &amp; Oracle ERP, CRM solutions</li> </ul>	<ul style="list-style-type: none"> <li>• Designed for Cloud Computing</li> <li>• Suited to web 2.0, cloud enabled and cloud native programming models</li> <li>• Resiliency is built into the platform/app layer</li> <li>• Typical services include MongoDB, NodeJS, RabbitMQ</li> </ul>
<b>Infrastructure (HW &amp; SW)                      Client or Provider                      DC Premise</b>	<b>Client, IBM or Softlayer                      Infrastructure &amp; Premise</b>	<b>IBM Premise</b>	<b>SoftLayer Premise</b>



# Enabled by workload-optimized infrastructure services

**NEW**

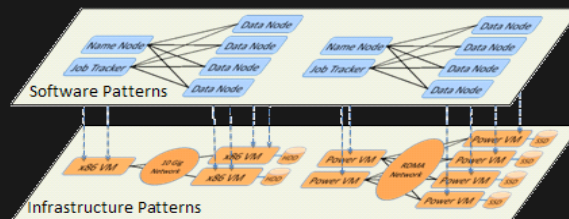
## IBM Cloud Orchestrator Extended to support SoftLayer

- Pattern and policy based optimization
- Enterprise cloud management platform

**NEW**

## IBM Platform Computing Cloud Service on SoftLayer

- Easy-to-manage unified grid on and off premise
- Elastic scale across cloud for compute and data



## Optimized Infrastructure



Public | Shared | Dedicated | Private | Traditional

# Build a cloud that's customized for you. Dynamic Hybrid is the future

## Private Cloud & IT



### Benefits:



- Fully customizable
- Robust management
- Secure by design

## Public Cloud



### Benefits:

- Low entry cost
- Pay-per-use
- Highly elastic

## Dynamic Hybrid



+



## Best of both worlds. Better outcomes.

- ✓ Maximize return on existing IT investments
- ✓ Match workloads to best-fit infrastructure
- ✓ Hit the right balance of risk to speed
- ✓ Meet seasonal capacity without CapEx

Add new capabilities quickly

# This is The Cloud of the Future

*...Dynamically consume, interconnect and orchestrate all types of clouds and IT...*





## Build it.

Build and run your private or hybrid cloud. Pacesetters often use both on-premise private and “as-a-service.”



Implementing IBM PureSystems for unified management of compute, storage, networking and virtualization delivered...

**75% reduction**

in time to deploy cloud technology and software – from 2 months to 2 weeks.



Creating a super-fast, scalable financial transaction service for midsize and enterprise clients, they only paid...

**1/10th cost**

of traditional services while reducing processing times from days to instantaneously.



Establishing a flexible, open development platform for scalable, mobile applications created a...

**5% boost**

in retail sales by transforming the customer experience with a new technology platform.

**30,000+ customers build to win with IBM.**



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