

# Infrastructure as a Service

## Next Generation Data Center & Cloud

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# Changing ...

## More Users



>1 Billion  
More Netizen's<sup>1</sup>

## More Devices



>15 Billion  
Connected Devices<sup>2</sup>

## More Data



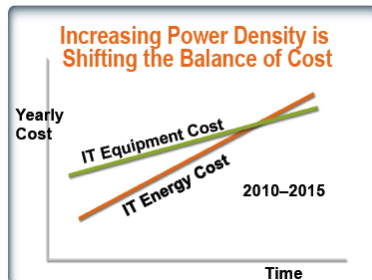
>1 Zetabyte  
Internet Traffic<sup>3</sup>

Internet and Device Expansion  
Drives New Requirements for Data Centers

# SoLoMoMeB powered by data centers

# Challenges

Increasing Power Density is  
Shifting the Balance of Cost



Dynamic  
Business

Economic  
changes

New Technologies  
emerged

Mobile inspired  
apps

Big data

Always connected  
anywhere

Changes in  
business  
strategies

Changes in  
Government  
policies

Internet  
Thinking

Accelerated  
Change

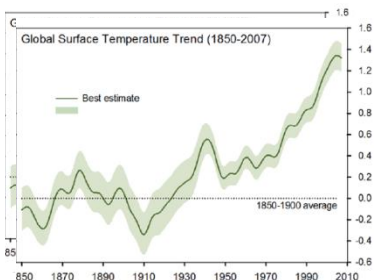
Adaptation &  
Optimisation

Need  
**Flexible**  
**Scalable**  
**Efficient**  
solutions

Mobile

Rising Energy  
Costs

Green IT



Climate Change

# Data in the cloud

- Datacenters
- SaaS/PaaS
- IaaS/XaaS



Information  
Generator



- 3G/4G
- FTTH/FTTB
- Broadband

Information  
Power Grid

Information  
Ecosystem

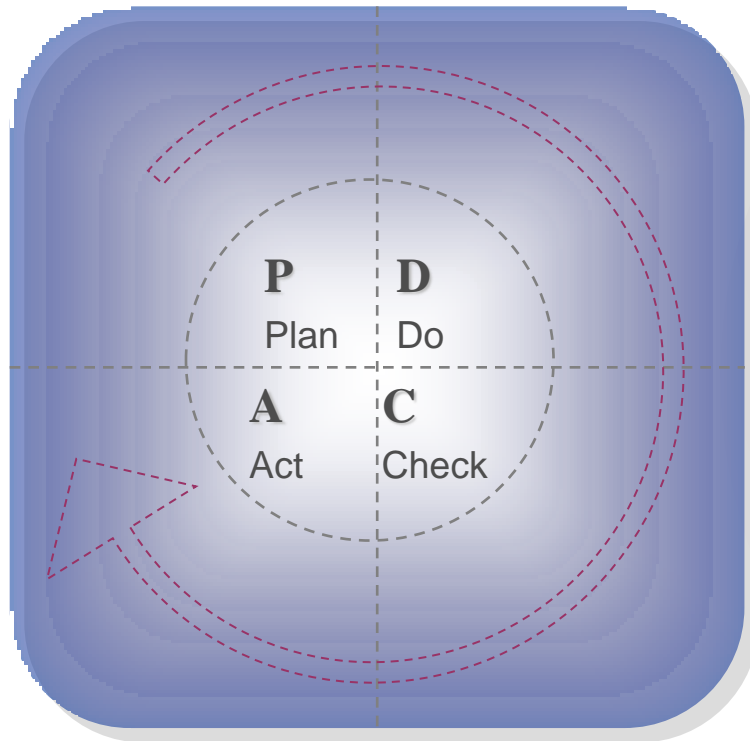
Smart Devices



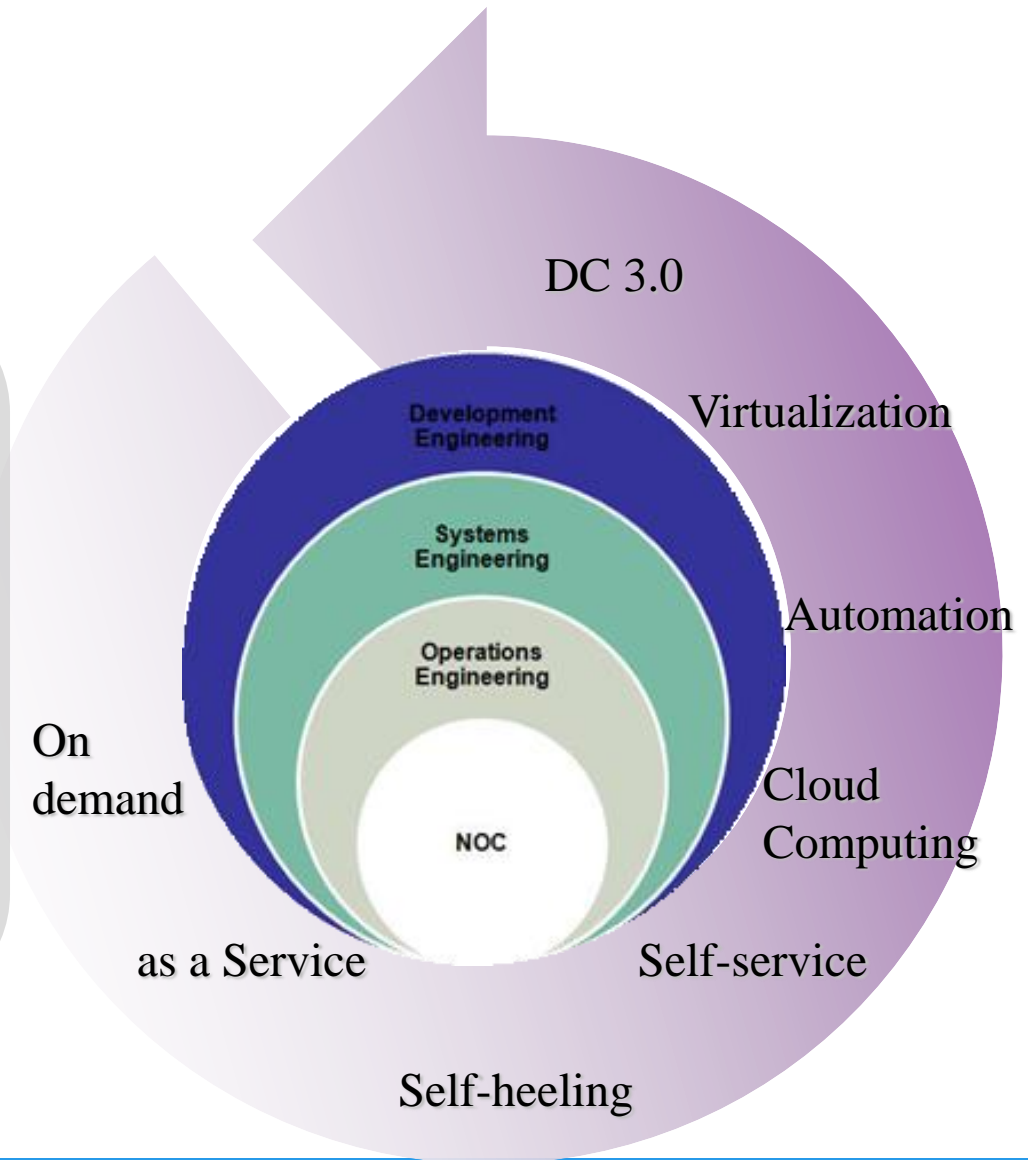
Connected Device

# Data Center – Information Power Grid

## Data Center as a Service

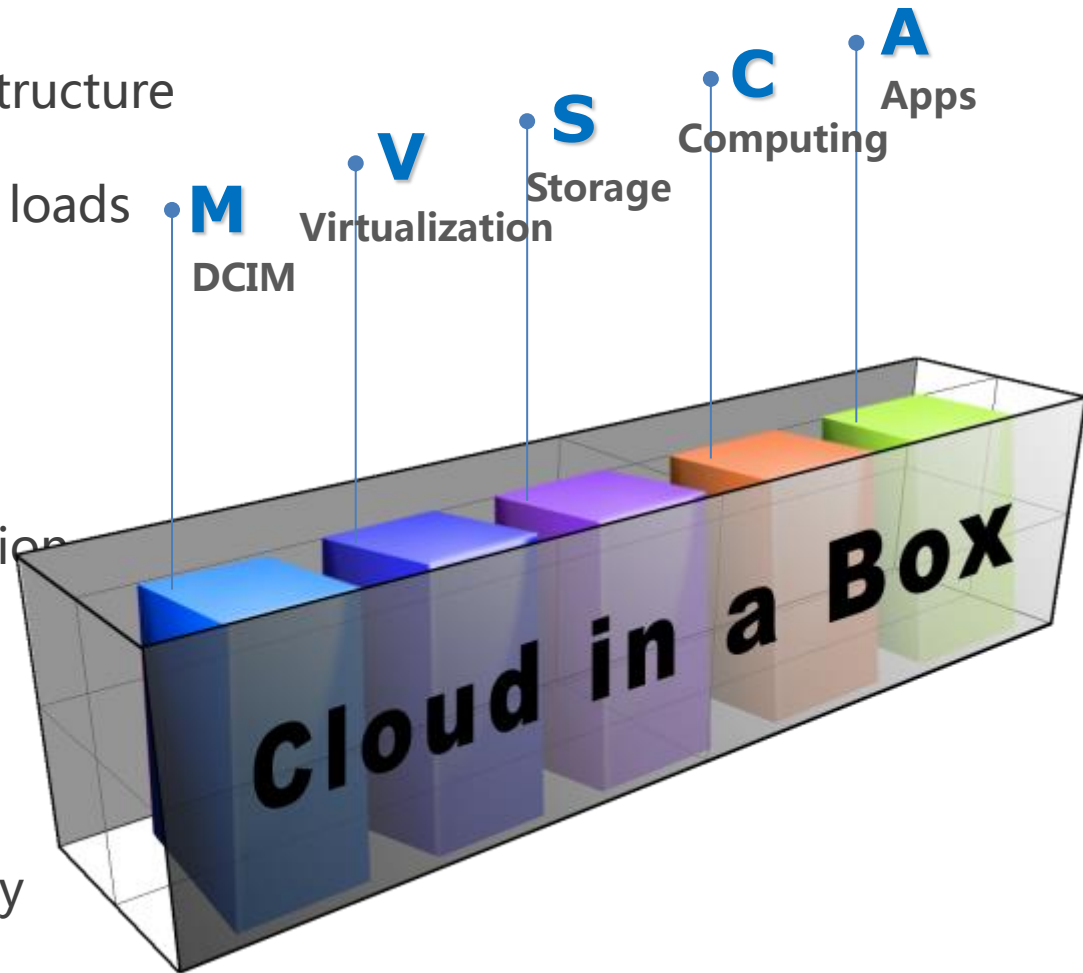


Higher Operation Maturity



# Cloud Infrastructure

- Facility to infrastructure
- Resources on demand infrastructure
- Meet cyclic or unpredictable loads
- Scalable elastic computing
- Mobile defined data center
- Instant infrastructure expansion
- SLA
- Security
- Business agility and efficiency

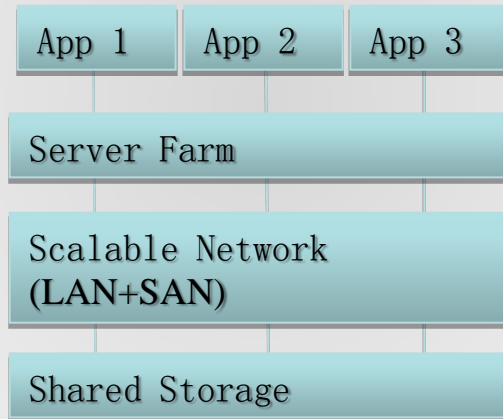


# Cloud – Data Utility

## Centralized

**Increase utilization**

**Lower cost**

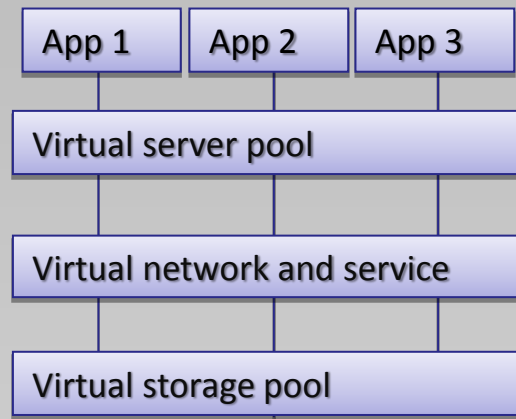


- Less complex
- Lower Opex

## Virtualization

**Improve agility**

**Flexible on apps & data**



- Fast deployment
- Meet unpredictable loads

## Information Utility

**Scale Elastic**

**Meet dynamic business needs**



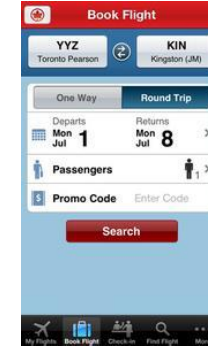
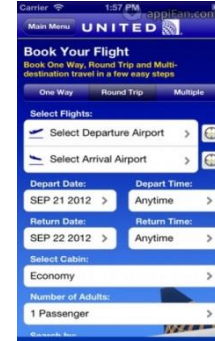
**Information  
Utility Cloud  
Infrastructure**

- Self service
- On demand
- Utility Model



# Infrastructure Service

- **In house or in the cloud**
  - cost & ownership
  - Legacy system
  - performance and availability
  - adapt to change
- **Security**
  - Encryption
  - Access control
  - Isolation
- **SLA**
  - redundancy
  - self service
  - 99.99%
- **Cloud Platform**
  - Open & standard



SaaS

XaaS

PaaS

IaaS

Cloud Solutions (Enablers)

Hardware Infrastructure

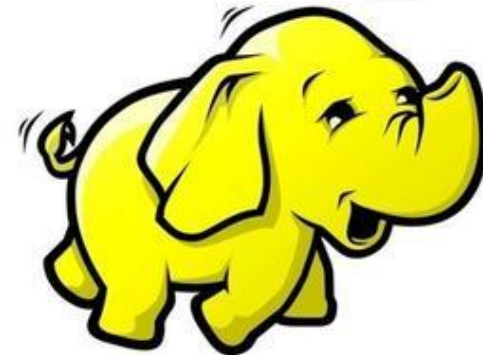


# Infrastructure Engineering

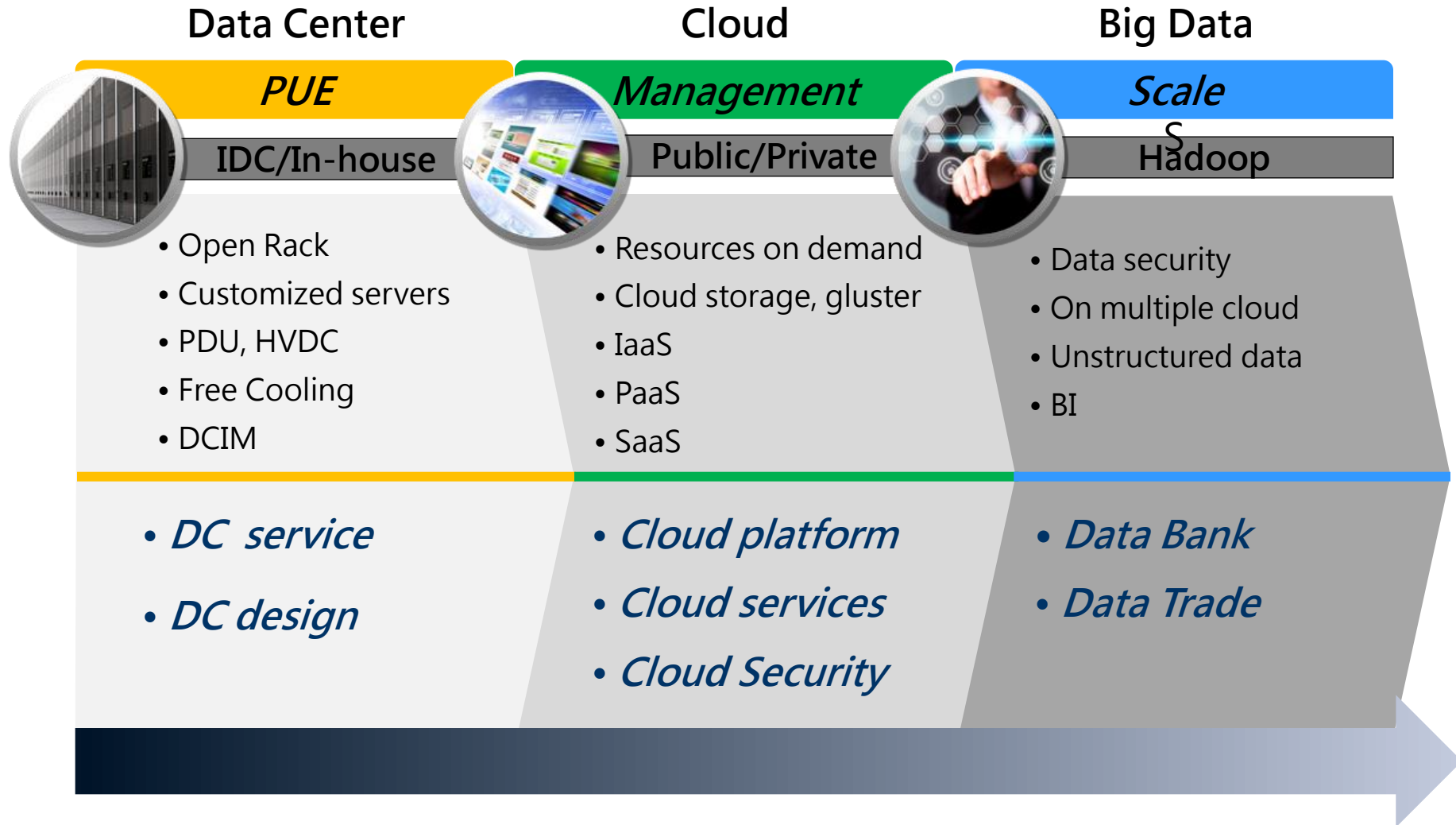
- **Design goals**
  - Business requirements
  - Open standard
- **Architecture**
  - Computing
  - Storage
  - Bandwidth
  - Security
- **Centralized IT to the cloud**
  - Resources & capacity
  - Agility & scalability
- **Technologies**
  - Cloud
  - Big data
- **Operation & Service**
  - Easy & flexible



***hadoop***

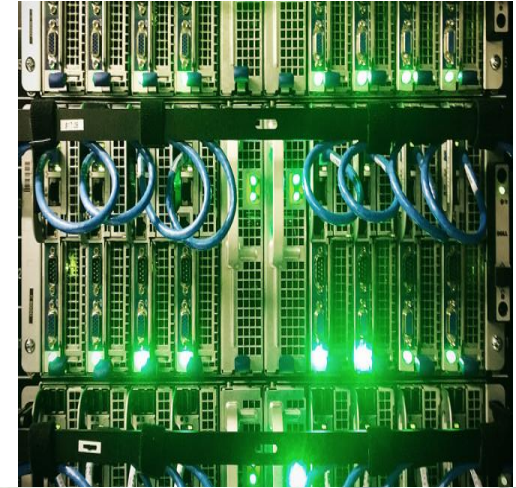


# Infrastructure Building Blocks



# Software Defined Data Center

- **Going bigger & smart**
  - High density
  - High efficient
- **Mobile – min supercomputer**
- **Cloud in data center**
- **Support big data**
- **PUE <1.3**
- **Energy-sensible DC**
- **Energy-sensible routing**
- **Power balancing**
- **Software driven**



# Container Data Center





# Modular Data Center

