BPM & Cloud Computing

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CLOUD COMPUTING

- Cloud computing is the the use of various services, such as software development platforms, servers, storage and software, over the internet, often referred to as the "cloud." (techopedia)

- In general, there are three cloud computing characteristics that are common among all cloud-computing vendors:

  - The back-end of the application (especially hardware) is completely managed by a cloud vendor.

  - A user only pays for services used (memory, processing time and bandwidth, etc.).
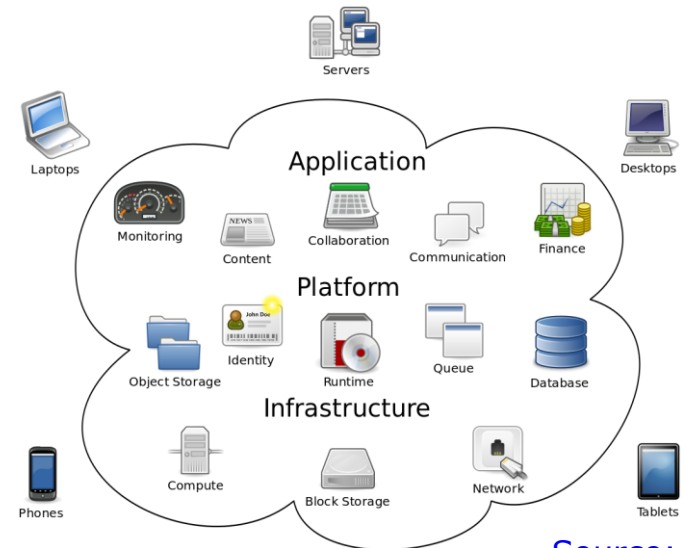
  - Services are scalable

CLOUD COMPUTING - THE NEXT REVOLUTION IN IT

- **Classical Computing**

    - Buy & Own

        - Hardware, System Software, Applications often to meet peak needs.

    - Install, Configure, Test, Verify, Evaluate

    - Manage

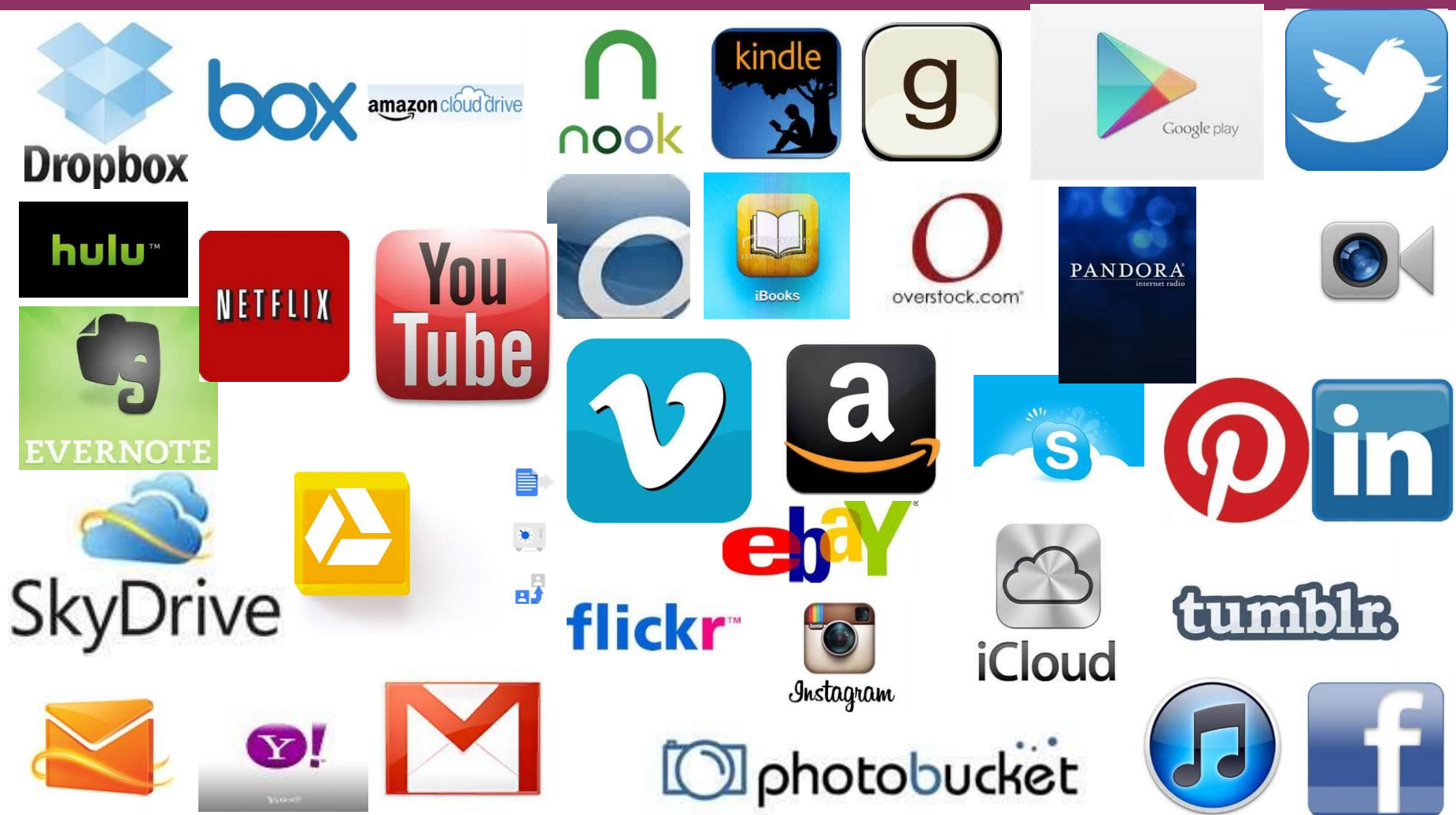   - ..

    - Finally, use it

- **Cloud Computing**

    - Subscribe

    - Use

    - Pay for what you use, based on QoS
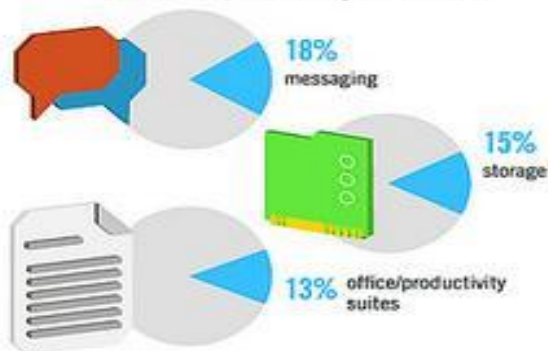

Source: Wikipedia

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5 Reasons Businesses Use the Cloud

Every year, more and more businesses are adopting cloud. While traditionally thought of as an IT decision, cloud is increasingly being considered a business decision to enable company functions. Take a look at five reasons why more businesses are adding the cloud to their technology arsenals.

1 It offers better insight and visibility

Businesses are using cloud technology to support their analytics efforts. Of leading organizations:

54% use analytics extensively to derive insights from big data

59% use cloud to share data seamlessly across applications

59% intend to use cloud to access and manage big data in the future

2 It makes collaboration easy

Cloud allows work to be accessed from anywhere on multiple devices, making cross-functional collaboration much easier. Here's what leading organizations—those that are gaining competitive advantage through cloud—cited as popular uses:

58% collaborate across the organization and ecosystem

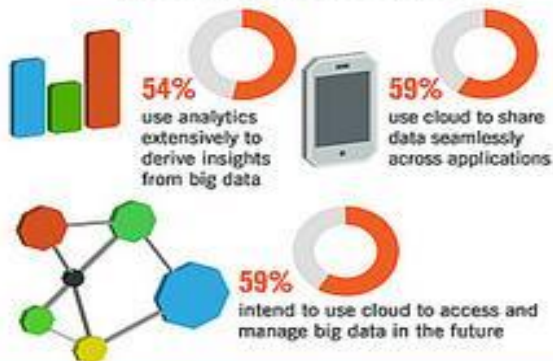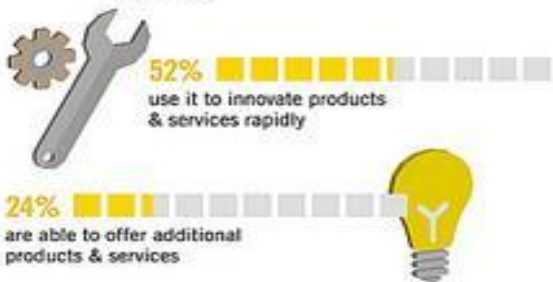**59%** improve integration between development and operations

3 It can support a variety of business needs

Companies are forging a tighter link between technology and business outcomes. Take a look at the business functions companies have migrated to the cloud.

18% messaging

15% storage
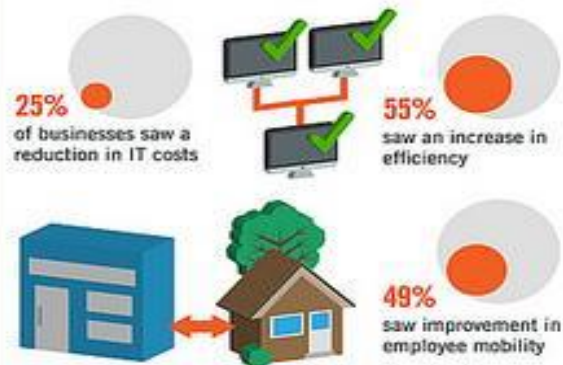
13% office/productivity suites

4 It allows for rapid development of new products and services

The cloud offers businesses valuable capabilities. Here's what leading organizations say it enables them to do:

52% use it to innovate products & services rapidly

24% are able to offer additional products & services

5 The results are proven

From business growth to increased efficiency, businesses using cloud are realizing benefits across the company.

25% of businesses saw a reduction in IT costs

55% saw an increase in efficiency

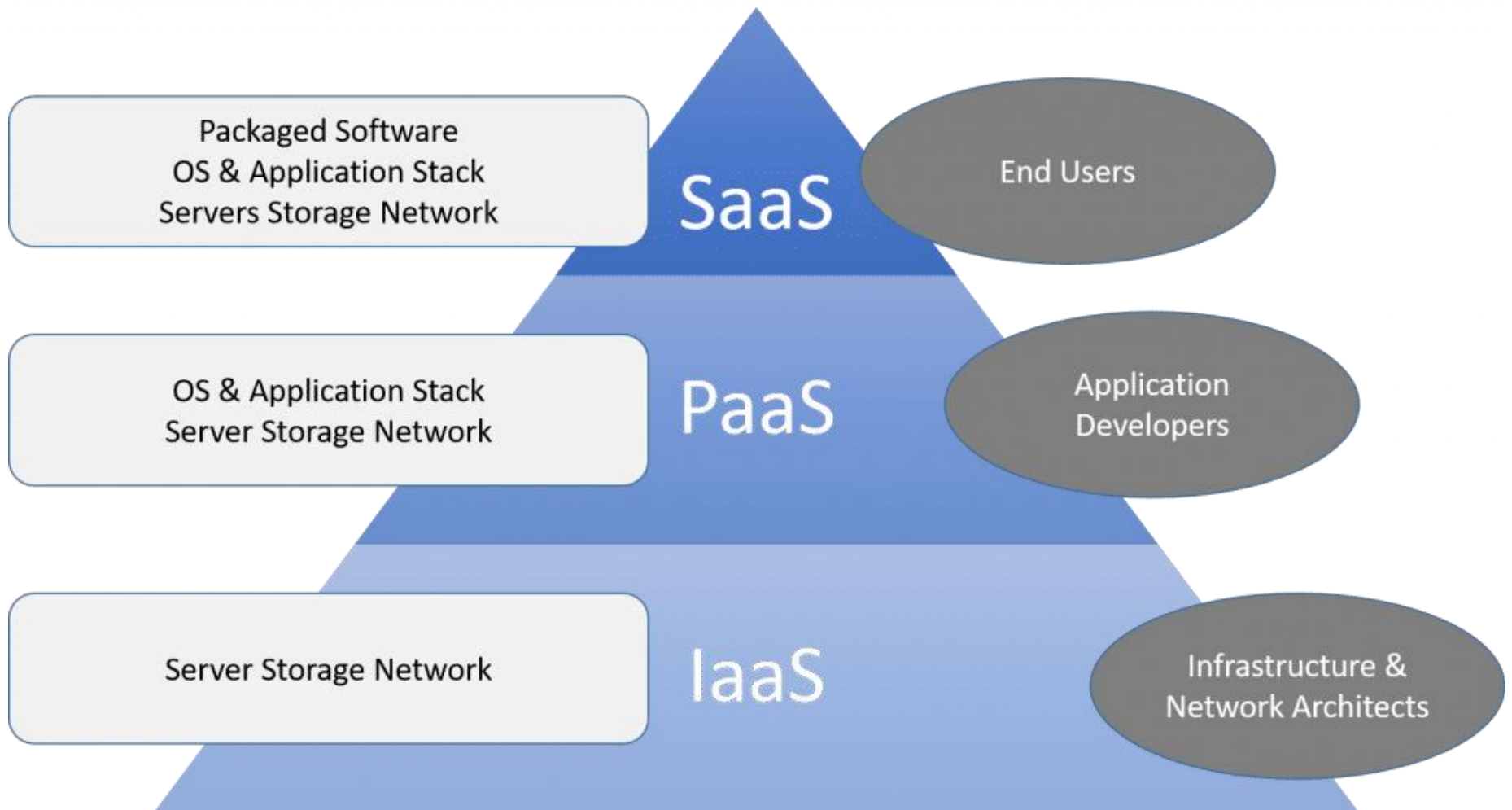**49%** saw improvement in employee mobility

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IBM

CLOUD SERVICE MODELS
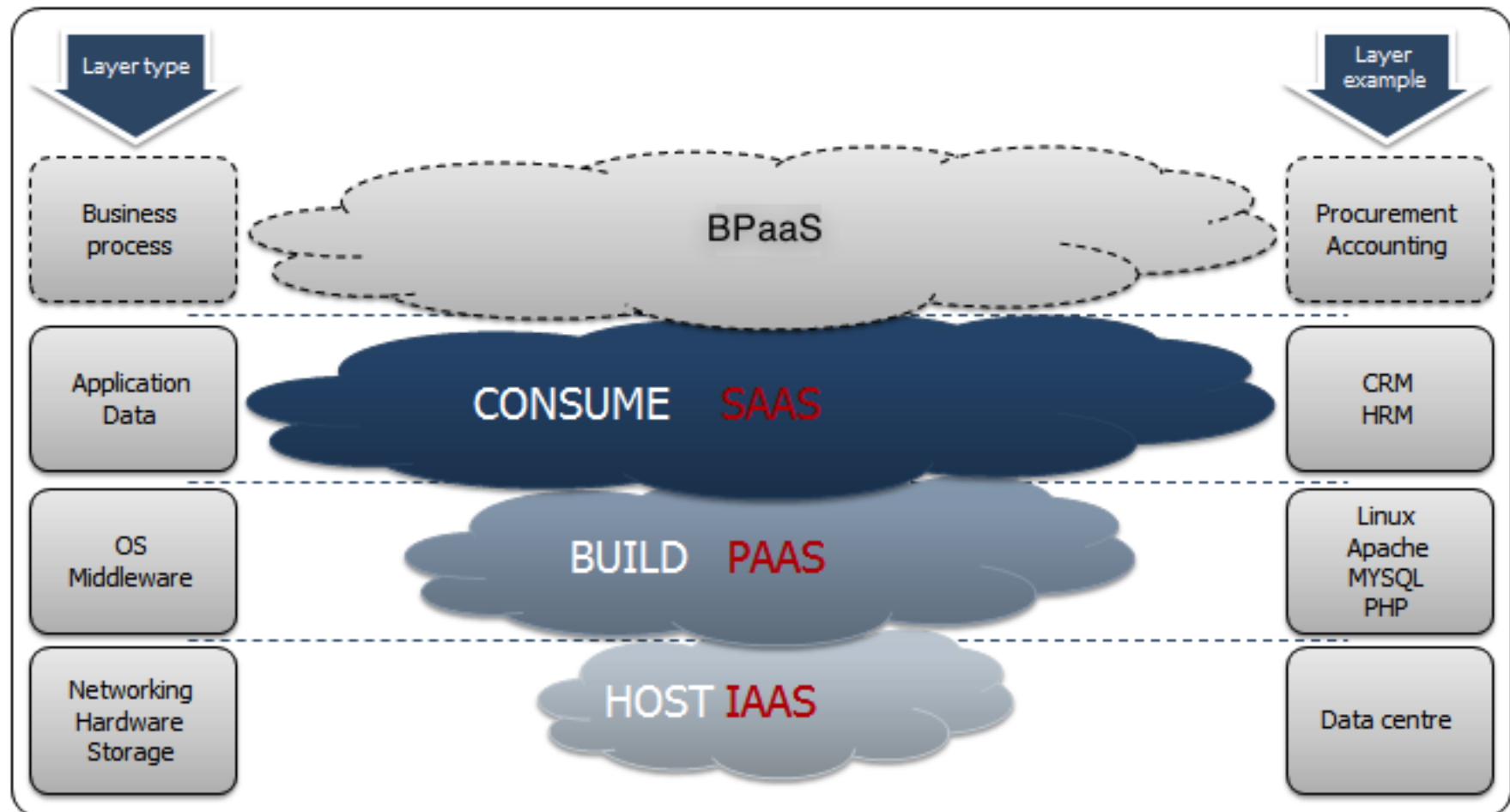
- Cloud Service models:

  - Software as a Service (SaaS) is a model in which software is offered as a service to the user. The software is hosted on a server and users access the software by using a web browser.

  - Platform as a Service (PaaS) is the offering of a computing platform as a service. Users are able to deploy their applications on such a platform. The platform offers auxiliary functionality such as a web server, databases, load balancing and more.

  - Infrastructure as a Service (IaaS) the cloud offers platform virtualization to the customer. The user is offered a virtual machine with some storage. Instead of buying servers and other network equipment, users just rent these resources.

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CLOUD SERVICE MODELS

Packaged Software
OS & Application Stack
Servers Storage Network

SaaS

End Users

OS & Application Stack
Server Storage Network

PaaS

Application
Developers

Server Storage Network

IaaS

Infrastructure &
Network Architects

CLOUD SERVICE MODELS

Source: https://www.visma.com/blog/cloud-basics-the-layers/

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USERS AND PROVIDERS OF CLOUD COMPUTING

SaaS User

Web applications

SaaS Provider / Cloud User

Utility computing

Cloud Provider

What is Cloud Computing?

LOCATIONS

SERVICES

Shared resources among a community of users

Public Cloud

Service that is controlled and exclusive to the user

Private Cloud

Ability to move workloads between private and public platforms.

Hybrid Cloud

IaaS
Infrastructure as a Service

Outsource the elements of infrastructure like Virtualization, Storage, Networking, Load Balancers

PaaS
Platform as a Service

Core hosting operating system and optional building block services that allow you to run your own applications

SaaS
Software as a Service

Consumed as a service only for the applications needed

Pros +
- Scale and Cost
- Choice and Agility
- Encapsulated Change Management
- Next Generation Architectures

Cons -
- Lock-in to service
- Security (Hacking)
- Lack of control and ownership
- Reliability

Source: http://www.xorlogics.com/

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THE CLOUDSOCKET PROJECT

- **"Business Process as a Service" (BPaaS)** is considered as a new paradigm that introduces the next abstraction from IaaS, PaaS, SaaS towards domain specific BPaaS.
  Hence, BPaaS is not seen as a technical combination of SaaS, but is seen as a **mediator between IT-agnostic business users and Cloud computing**

- This projects puts forth the idea of a "hybrid process" modelling framework applying well-known techniques for semantic, rule-based inference, meta modelling and knowledge management techniques to bridge the gap between business needs and the use and exploitation of Cloud resources and components.
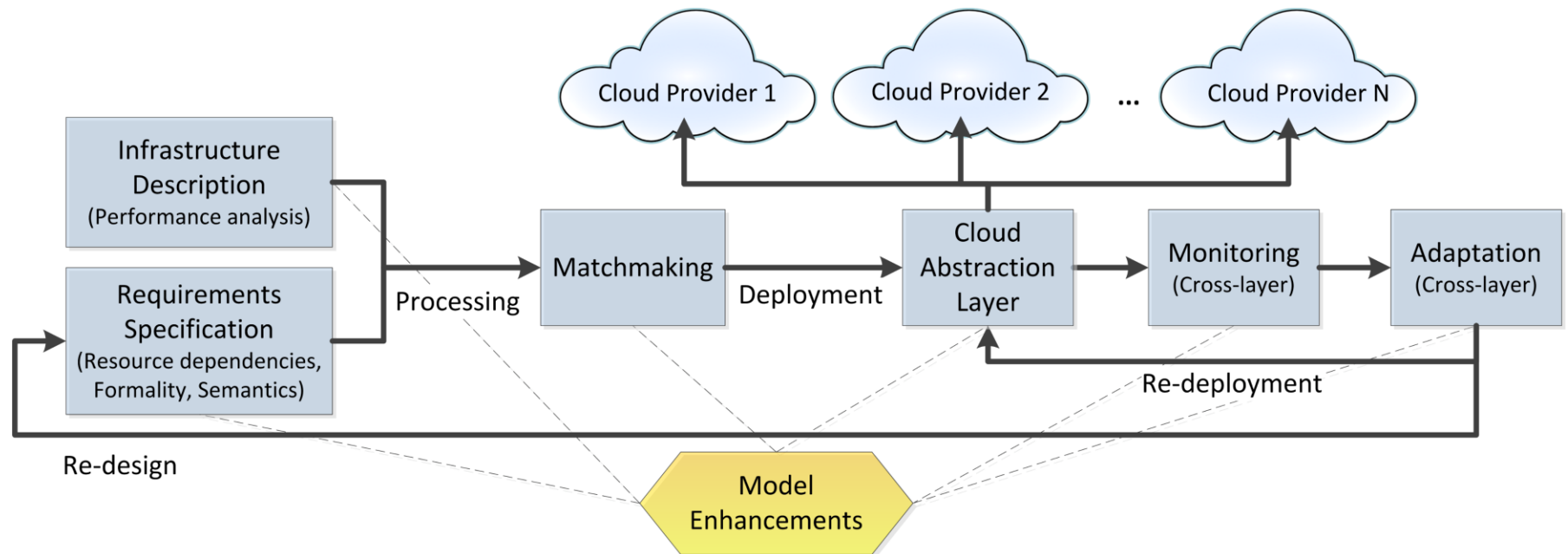
CloudSocket

https://site.cloudsocket.eu/

@cloudsocketeu

Business-Process Requirements

Smart CloudSocket

Cloud Offerings

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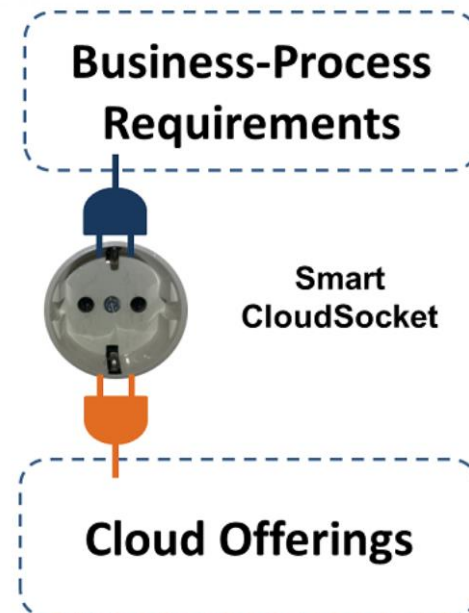
LIFECYCLE OF A MULTI-CLOUD APPLICATION

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TOP OBSTACLES TO CLOUD COMPUTING

1. Availability of service

2. Data lock-in

3. Data confidentiality

4. Data transfer bottlenecks

5. Performance unpredictability

6. Scalable storage

7. Bugs in large-scale distributed systems

8. Scaling quickly

9. Reputation fate sharing

10. Software licensing

RECOMMENDED READING

- https://www2.eecs.berkeley.edu/Pubs/TechRpts/2009/EECS-2009-28.pdf

- https://www.youtube.com/watch?v=ae_DKNwK_ms

- https://www.youtube.com/watch?v=whkyRvugqlM

- https://www.youtube.com/watch?v=LSbceOWZvJg

- https://www.youtube.com/watch?v=6HvEZCHaH3w