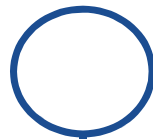


TalanSolutions[★]

EISTI 2018 – Le Cloud



AGENDA



Le Cloud

Objectif du cours

Comprendre l'impact des technologies cloud sur le métier de la BI



Intervenants

- Lyes NADOUR – Architect Solution / Expert décisionnel

Objectifs de la formation

Objectifs :

- Le Cloud : introduction
- Présentation des différentes architectures
- Les acteurs majeurs et leurs offres de services
- La BI dans tout cela ?
- Mettre la main à la pâte

Principes de la formation :

- Présentation / Vulgarisation
- Mise en pratique en équipe
- Questions / réponses



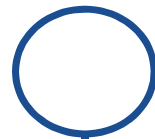
C'est votre cours, soyez en acteurs

Plan de la formation

Mercredi 17 octobre 2018

- 09h30 – Activité
- 10h45 – Pause 15'
- 11h00 – Activité
- 12h15 – Pause déjeuner 1h00
- 13h15 – reprise d'activité
- 15h30 – Pause 15'
- 15h45 – Activité
- 17h00 – Fin

AGENDA



Organisation

Former des groupes de 5 à 6 personnes

Les règles de la partie :

- Définir un Réalisateur pour chaque activité
- Le but est d'aider le Réalisateur à finir l'activité ASAP
- Chacun doit suivre l'avancement du Réalisateur et l'aider à aller plus vite.





Qui a déjà utilisé du "Cloud" ?





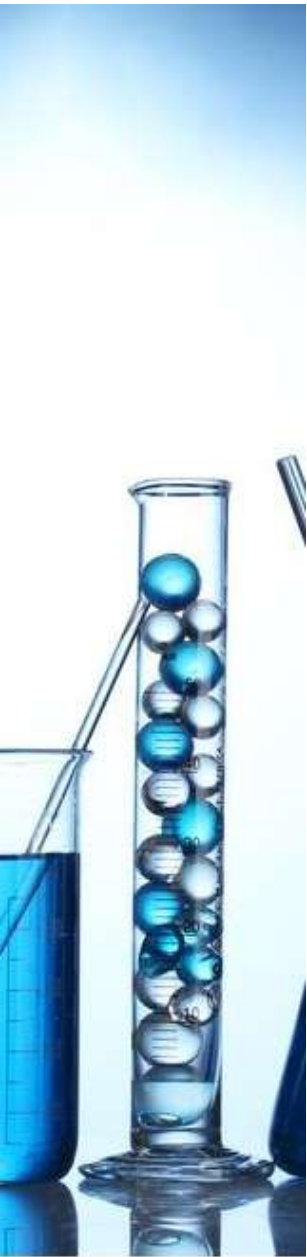
Introduction

Evolution du web

- **Web 1.0** : Pages HTML + Hyperliens. Il permet une navigation fluide entre les différentes pages. Le paradis de l'encyclopédie.
- **Web 2.0** : Web 1.0 + Wiki. Le web devient dynamique et l'encyclopédie coopérative. Découlent les blogs, les réseaux sociaux.
- **Web 3.0** : Le Cloud ? Mais qu'est-ce que le Cloud ? IoT ? ... n'en parlons plus.
- **Web 4.0** : Domaine des futurologues et SF : Le cobaye, Transcendance, ...

Petite chronique du cloud

- 1950 - Concept du RJE (Remote Job Entry Process _ exécution de travaux à distance) (IBM).
- 1970 - Mainframe.
- 1980 - Client-Serveur.
- 1990 - WEB INTERNET.
- 2000 - Hébergeurs Web d'applications.
- 2000 - Service offerts sur le web : courrier électronique, outils collaboratifs, CRM.
- 2000 - SOA, Service-Oriented Architecture.
- 2006 - AWS (Amazon Web Service) : 1er cloud public.
- 2010 - CLOUD, tout le monde en parle.
- 2017 - Big Data, IA et IoT, tout le monde s'y met.

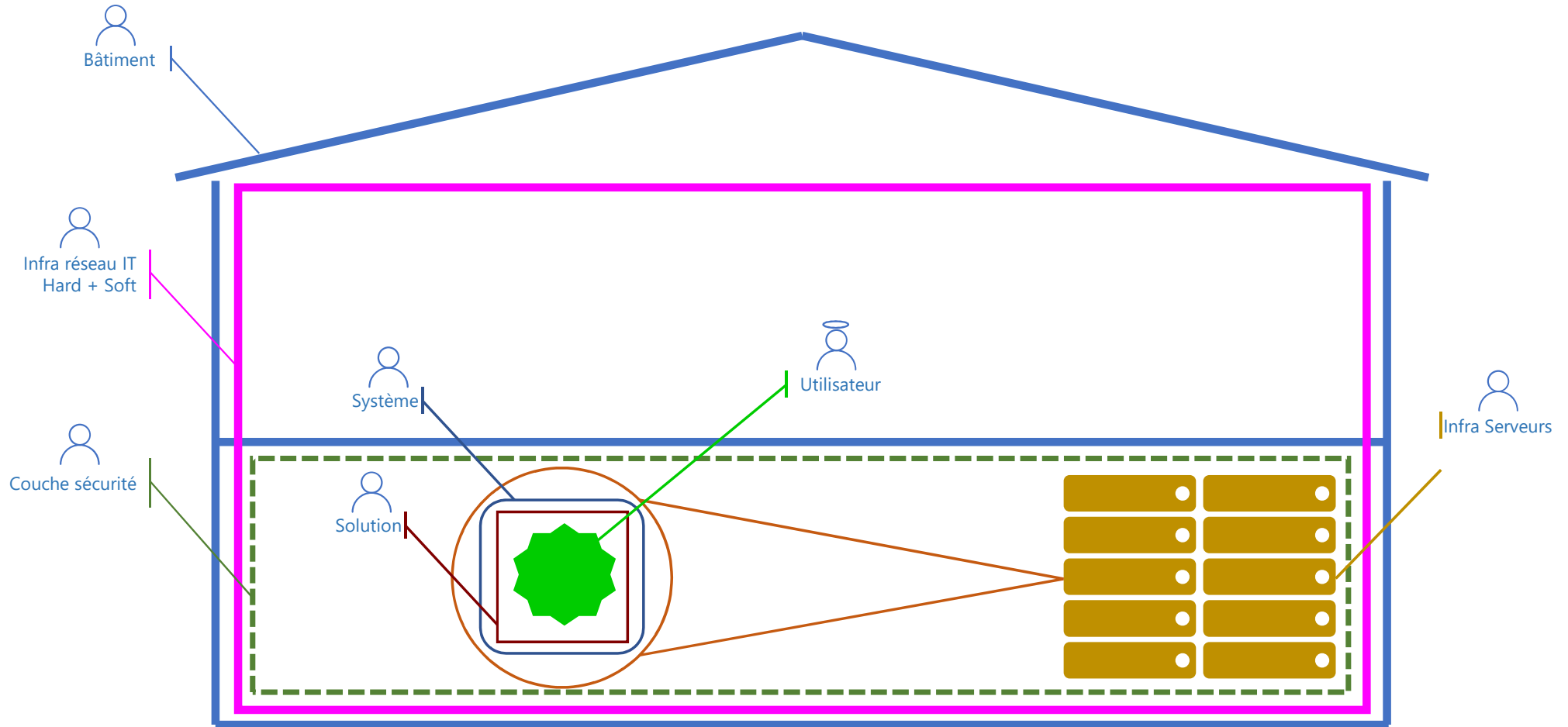


Lab : Créer une machine, installer un logiciel et les rendre accessibles aux autres élèves

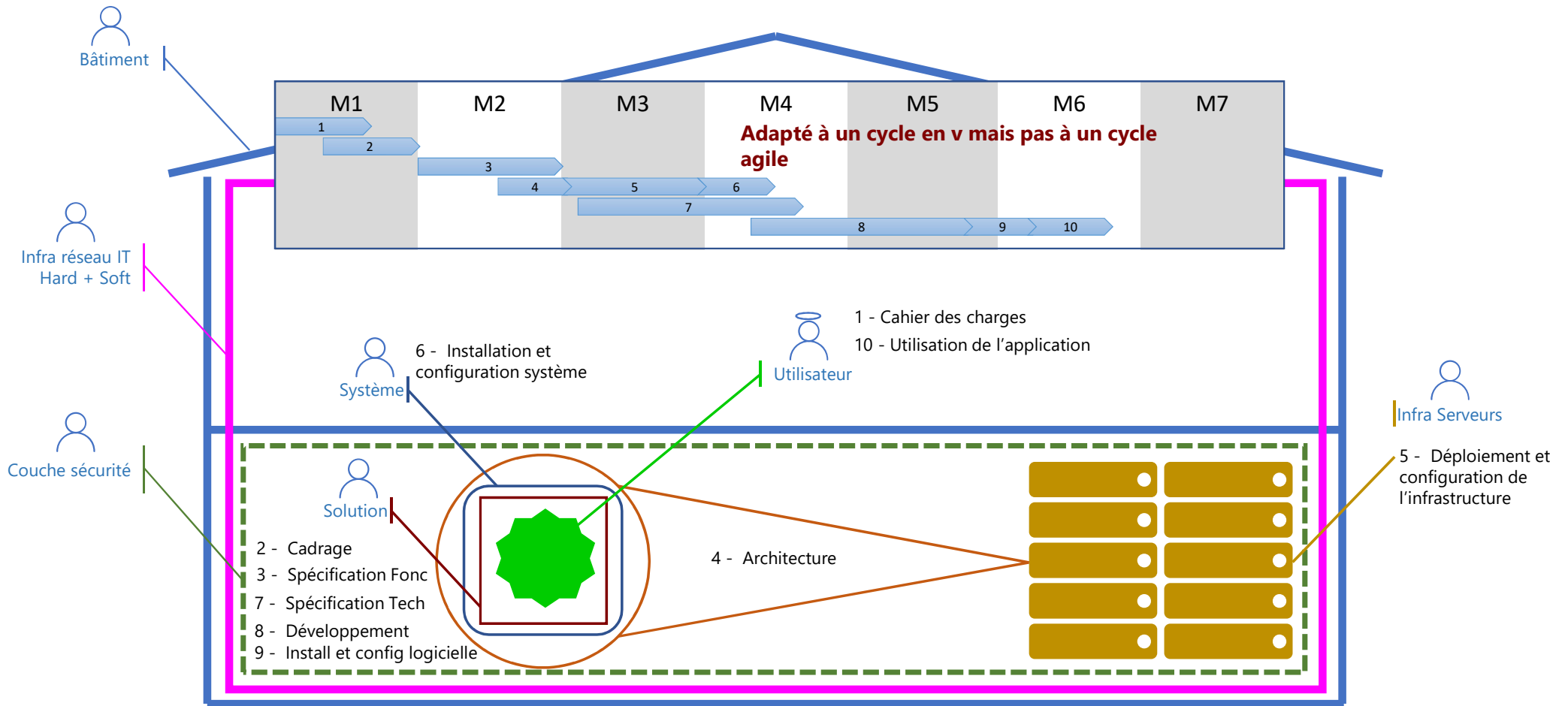


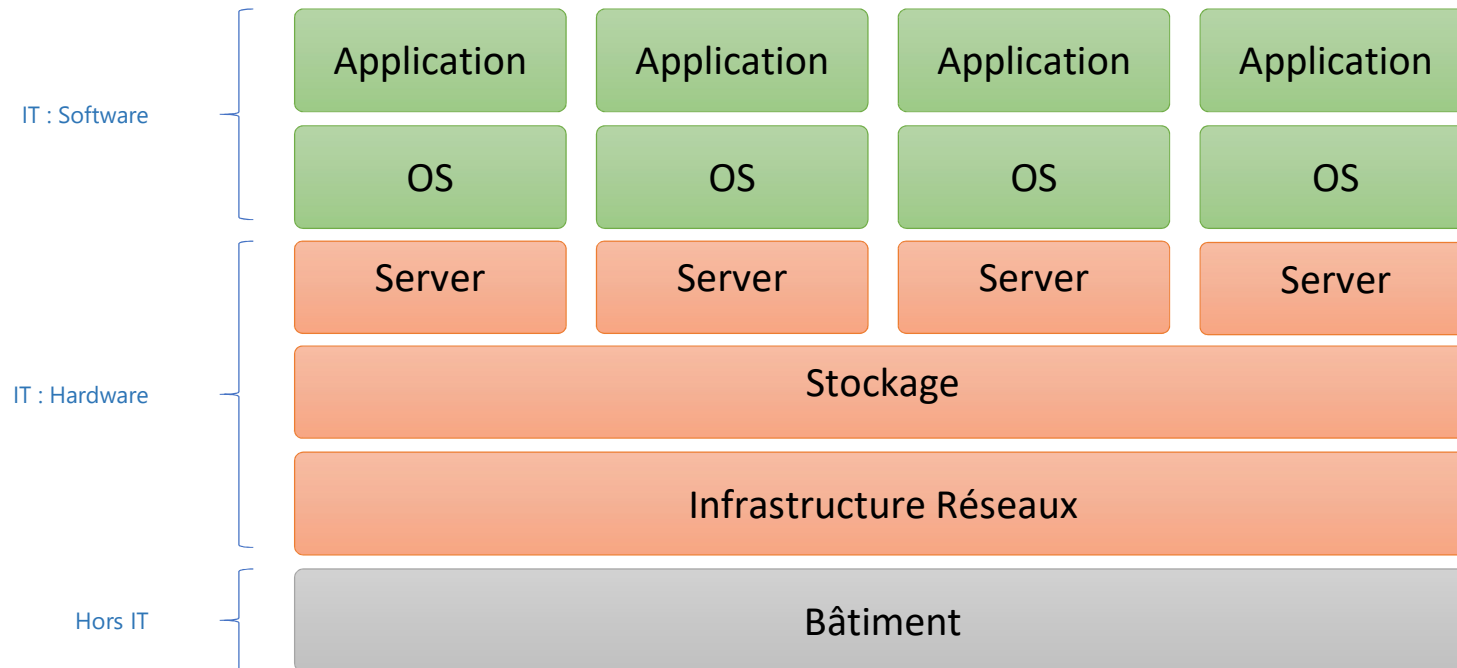
Infrastructure & Architecture SI

Un peux d'architecture IT (Vision grossière)



Mise en place d'une application (Vision grossière)



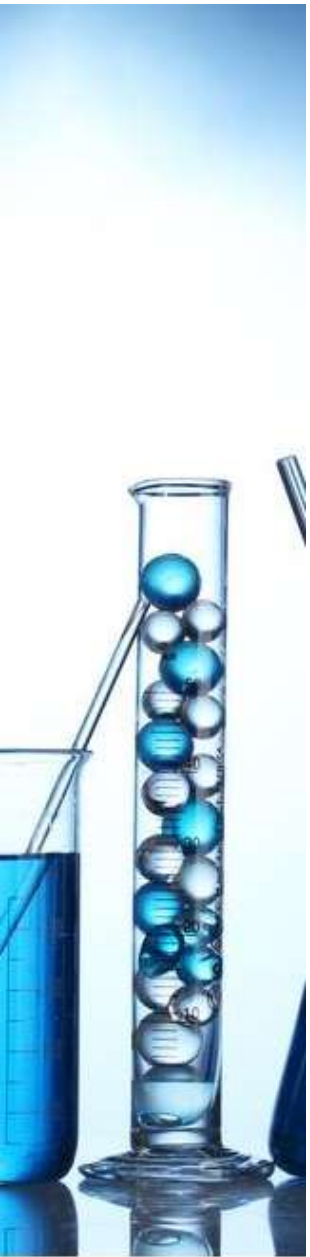


Handicaps d'une architecture physique

- Multiplicité des intervenants
- Complexité d'organisation
- Difficulté à gérer les compétences
- Redondances de certaines tâches d'une application à une autre
- Temps relativement lent entre l'expression du besoin et la disponibilité de l'application
- Gestion d'obsolescence : Hardware et software
- Utilisation des ressources non optimisée

Comment alléger cet écosystème ?

- Outsourcing



Lab 00 & 01



Créez un compte AWS

Obtenez un accès instantané à l' offre gratuite d'AWS.



Découvrir avec des didacticiels de 10 minutes

Explorez et apprenez avec des didacticiels simples.



Commencer à créer avec AWS

Commencez à créer avec des guides détaillés pour vous aider à lancer votre projet AWS.



Database

DynamoDB

Predictable and Scalable NoSQL Data Store

ElastiCache

In-Memory Cache

RDS

Managed Relational Database

Redshift

Managed Petabyte-Scale Data Warehouse

Storage & CDN

S3

Scalable Storage in the Cloud

EBS

Networked Attached Block Device

CloudFront

Global Content Delivery Network

Glacier

Archive Storage in the Cloud

Storage Gateway

Integrates On-Premises IT with Cloud Storage

Import Export

Ship Large Datasets

Cross-Service

Support

Phone & email fast-response 24X7 Support

Marketplace

Buy and sell Software and Apps

Management Console

UI to manage AWS services

SDKs, IDE kits and CLIs

Develop, integrate and manage services

Analytics

Elastic MapReduce

Managed Hadoop Framework

Kinesis

Real-Time Data Stream Processing

Data Pipeline

Orchestration for Data-Driven Workflows

Compute & Networking

EC2

Virtual Servers in the Cloud

VPC

Virtual Secure Network

ELB

Load balancing Service

WorkSpaces

Virtual Desktops in the cloud

Auto Scaling

Automatically scale up and down

DirectConnect

Dedicated Network Connection to AWS

Route 53

Scalable Domain Name System

Deployment & Management

CloudFormation

Templated AWS Resource Creation

CloudWatch

Resource and Application Monitoring

Elastic Beanstalk

AWS Application Container

IAM

Secure AWS Access Control

CloudTrail

User Activity Logging

OpsWorks

DevOps Application Management Service

CloudHSM

Hardware-based key storage for compliance

App Services

CloudSearch

Managed Search Service

Elastic Transcoder

Easy-to-use Scalable Media Transcoding

SES

Email Sending Service

SNS

Push Notification Service

SQS

Message Queue Service

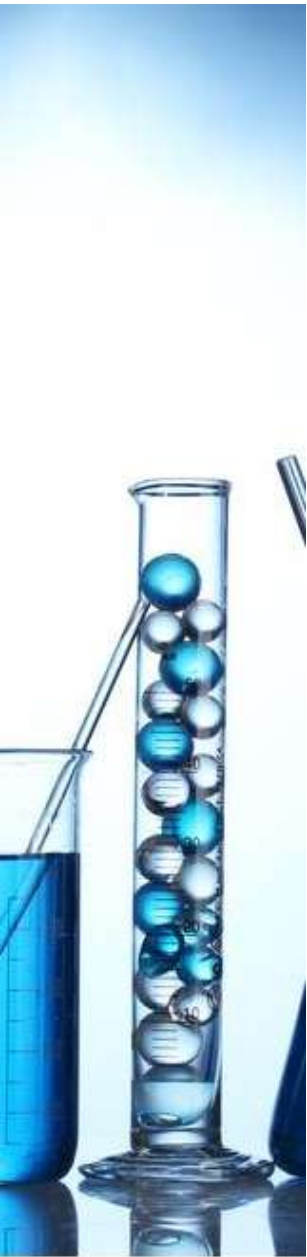
SWF

Workflow Service for Coordinating App Components

AppStream

Low-latency Application Streaming

AWS Global Physical Infrastructure
(Geographical Regions, Availability Zones, Edge Locations)



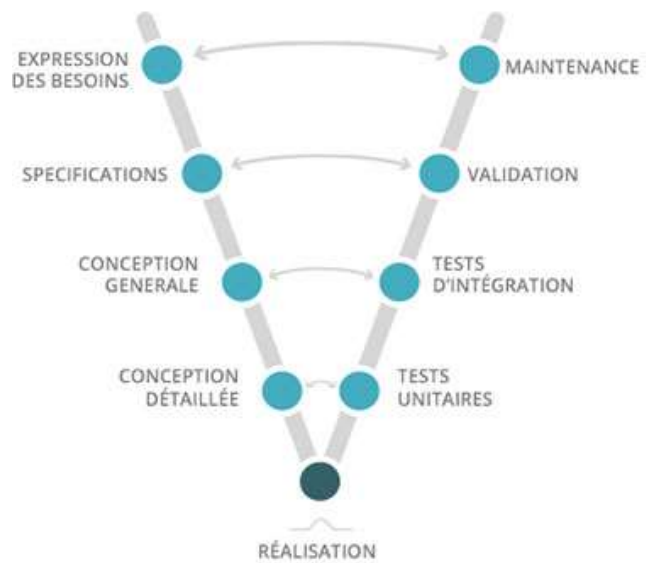
Lab 0 & 1 : se faire guider par

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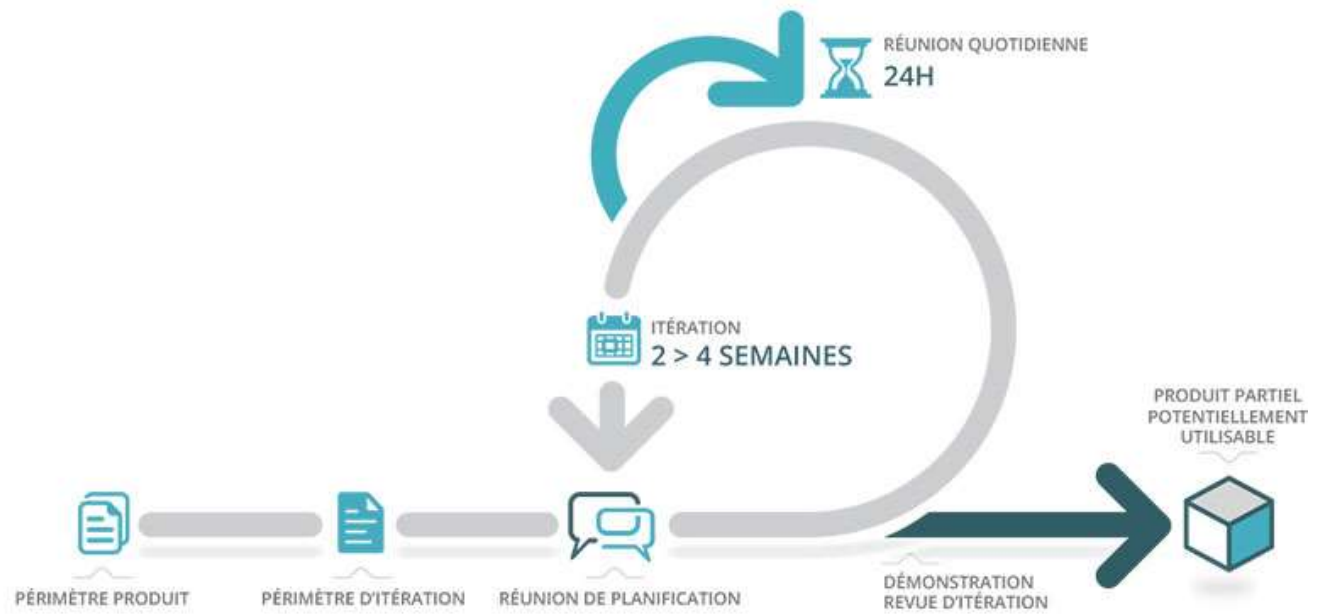
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Agilité



LA MÉTHODE EN V

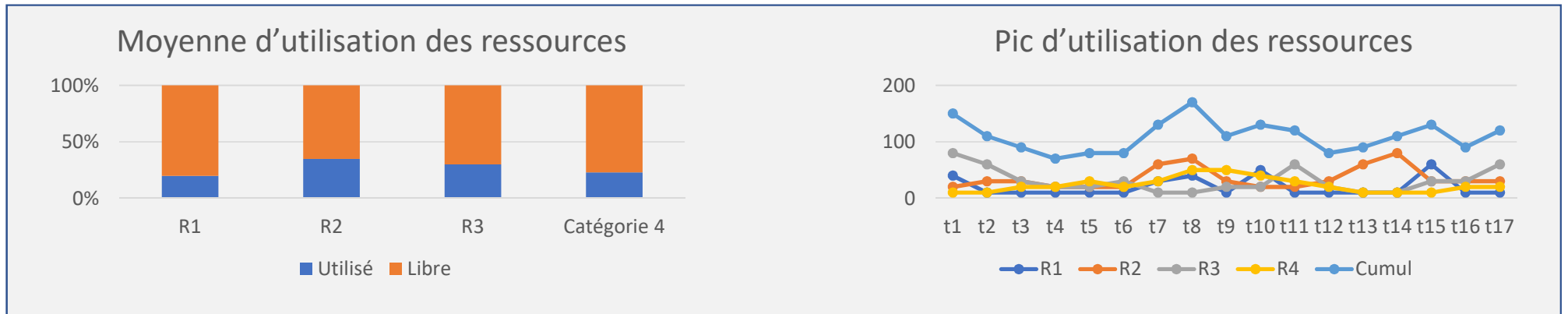


LA MÉTHODE AGILE



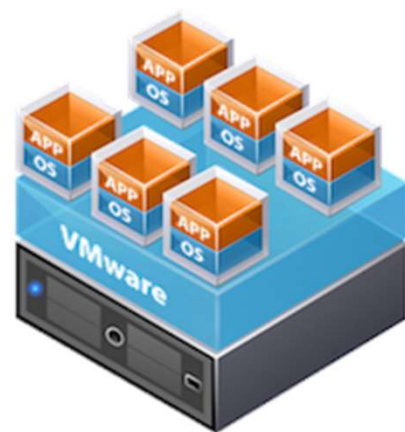
La virtualisation

Toute cette perte !

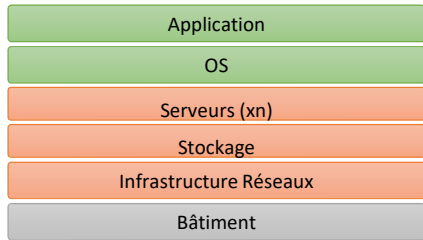




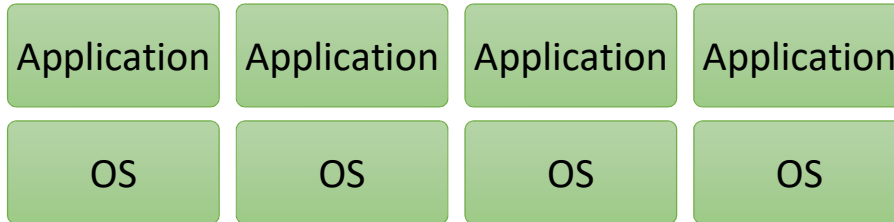
Serveur physique
1 serveur = 1 système d'exploitation



Serveur virtualisé
1 serveur = plusieurs VMs

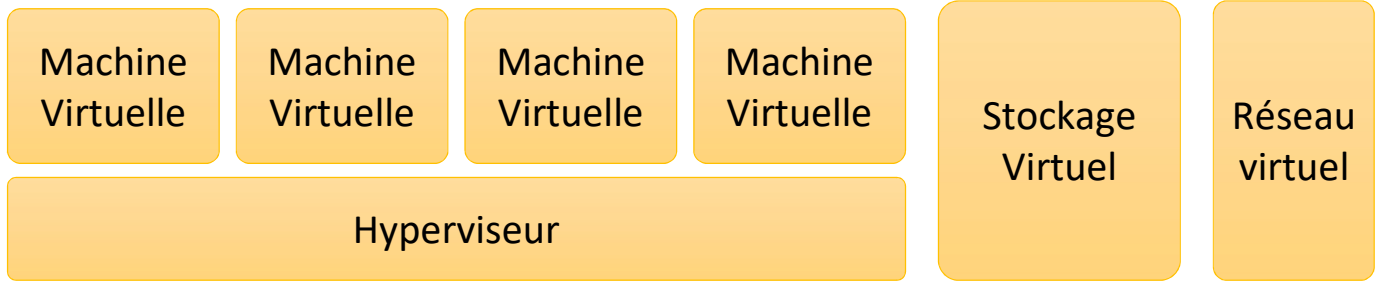


IT : Software



IT : Virtualisation

Paramétrage centralisé

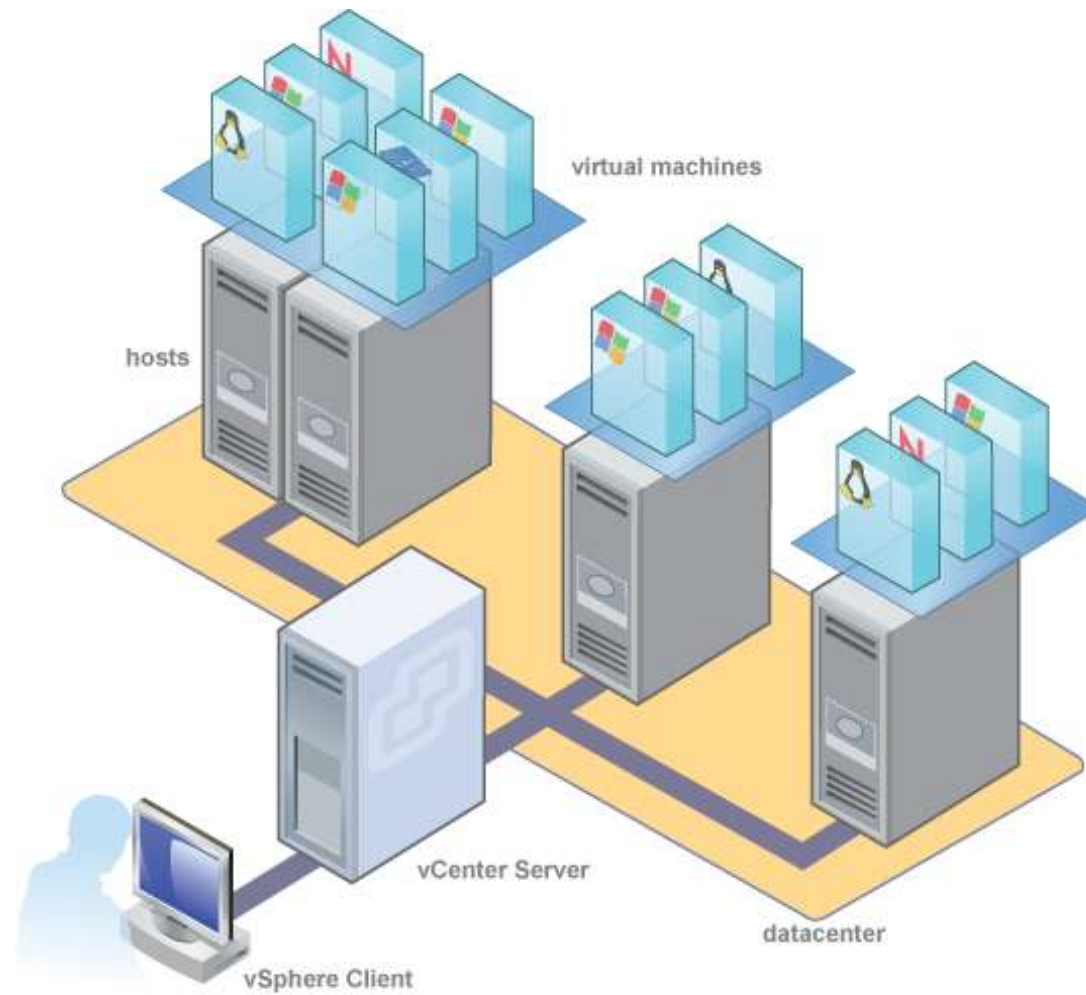


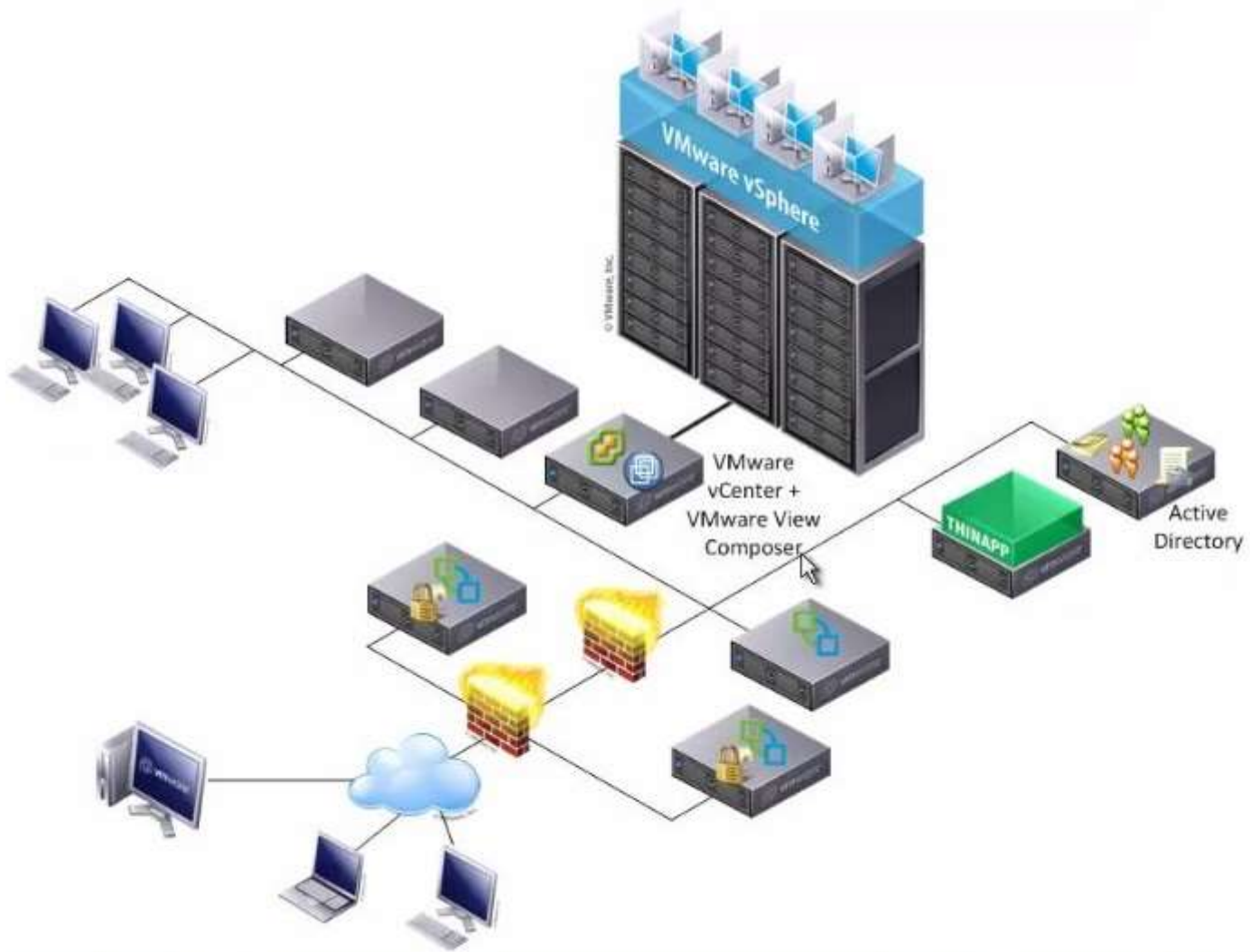
IT : Hardware

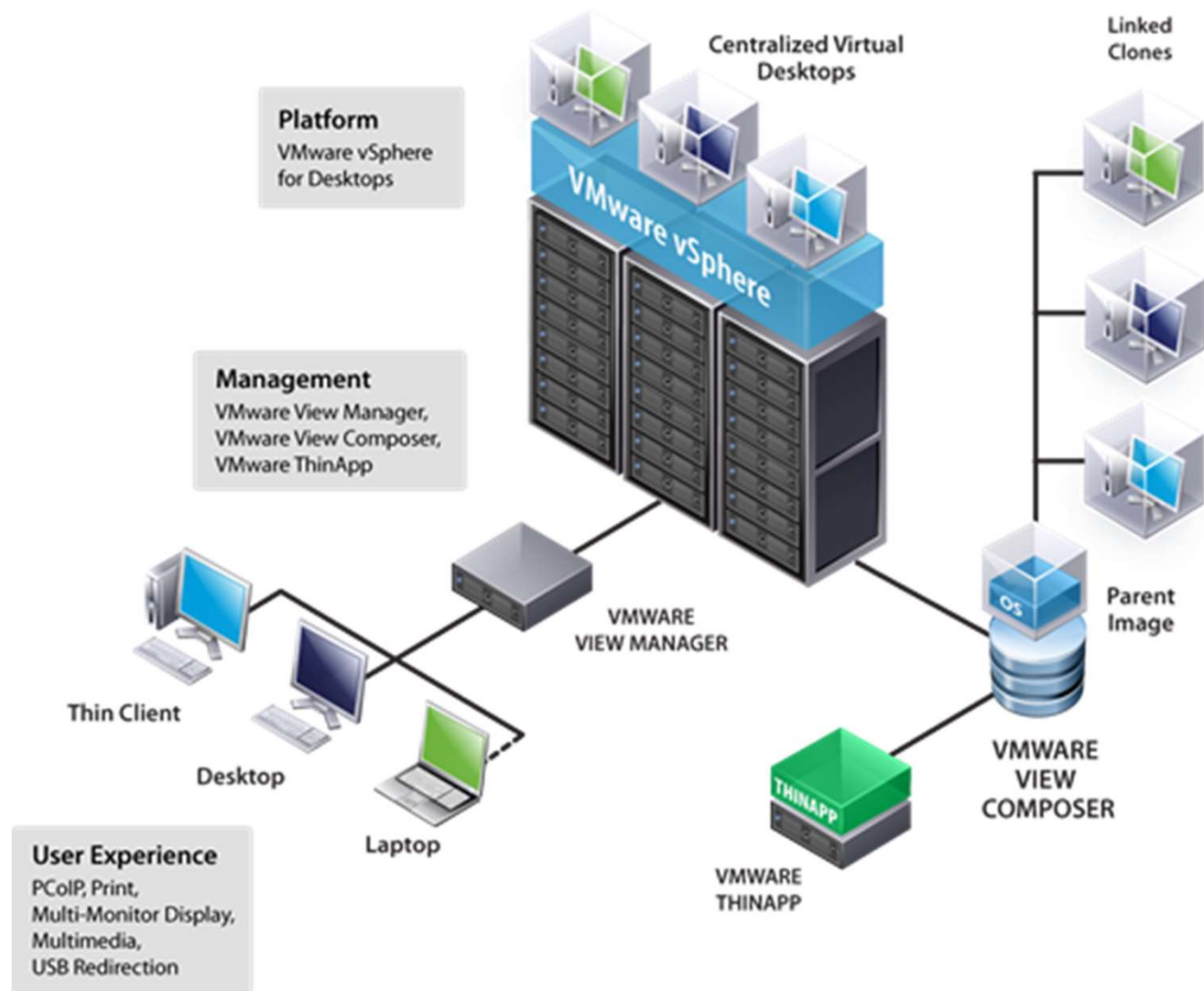
Infrastructures massives,
standardisées et simplifiées
(Datacenter)

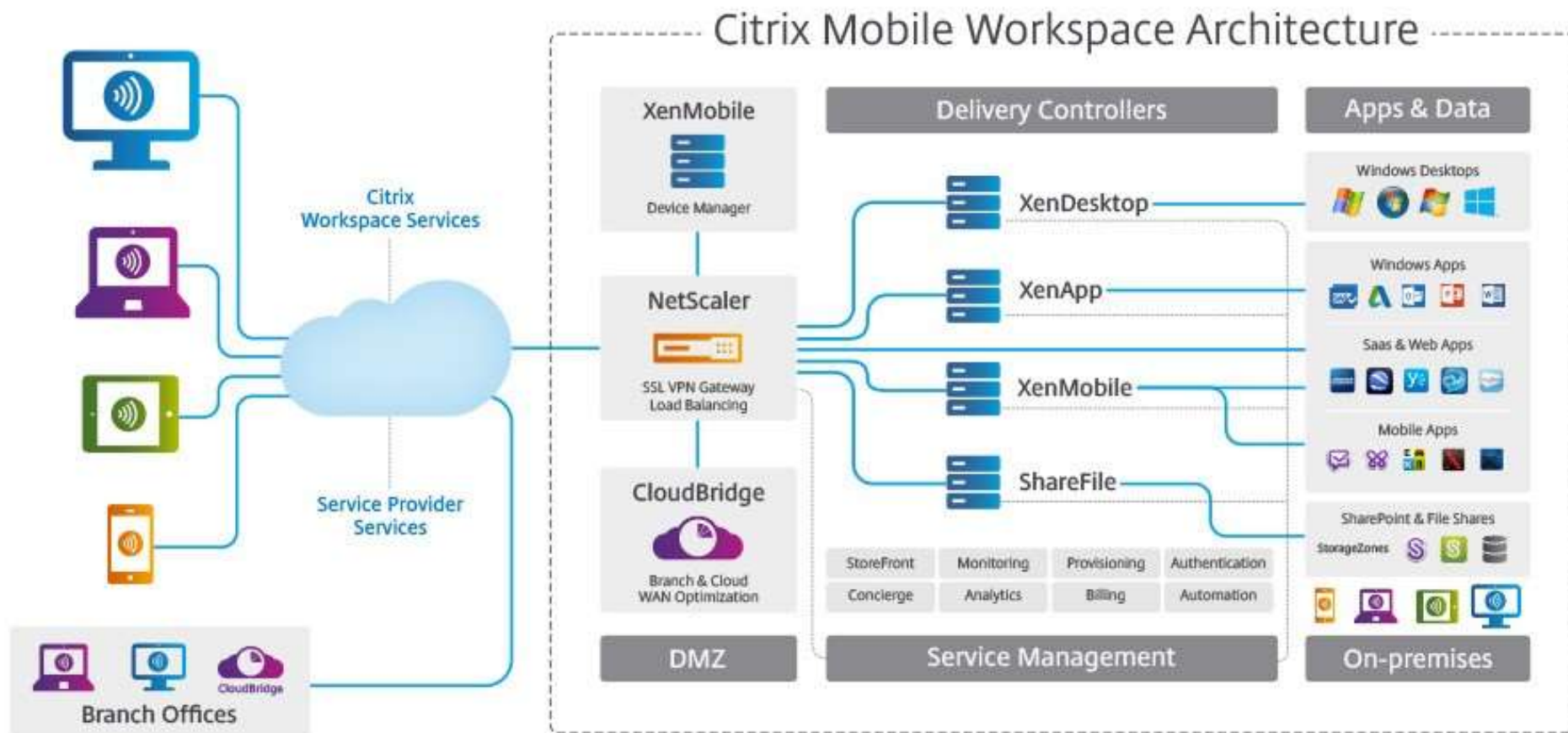
Hors IT











Gartner Magic Quadrant 2016



La solution Open Source : Proxmox

The screenshot displays the Proxmox Virtual Environment (PVE) web interface for node 'vmm01'. The interface includes a navigation sidebar on the left, a main content area with system statistics and graphs, and a task history table at the bottom.

System Summary:

- Uptime: 10 days 13:50:56
- CPU usage: 16.19% of 4 CPU(s)
- Load average: 0.67, 0.74, 0.81
- IO delay: 0.08%
- RAM usage: 30.69% (2.35 GiB of 7.64 GiB)
- KSM sharing: 450.41 MiB
- HD space(root): 6.25% (5.99 GiB of 95.95 GiB)
- SWAP usage: 0.63% (103.75 MiB of 16.00 GiB)
- CPU(s): 4 x Intel(R) Celeron(R) CPU J3455 @ 1.50GHz (1 Socket)
- Kernel Version: Linux 4.13.13-2-pve #1 SMP PVE 4.13.13-32 (Thu, 21 Dec 2017 09:02:14 +0100)
- PVE Manager Version: pve-manager/5.1-41/06958203

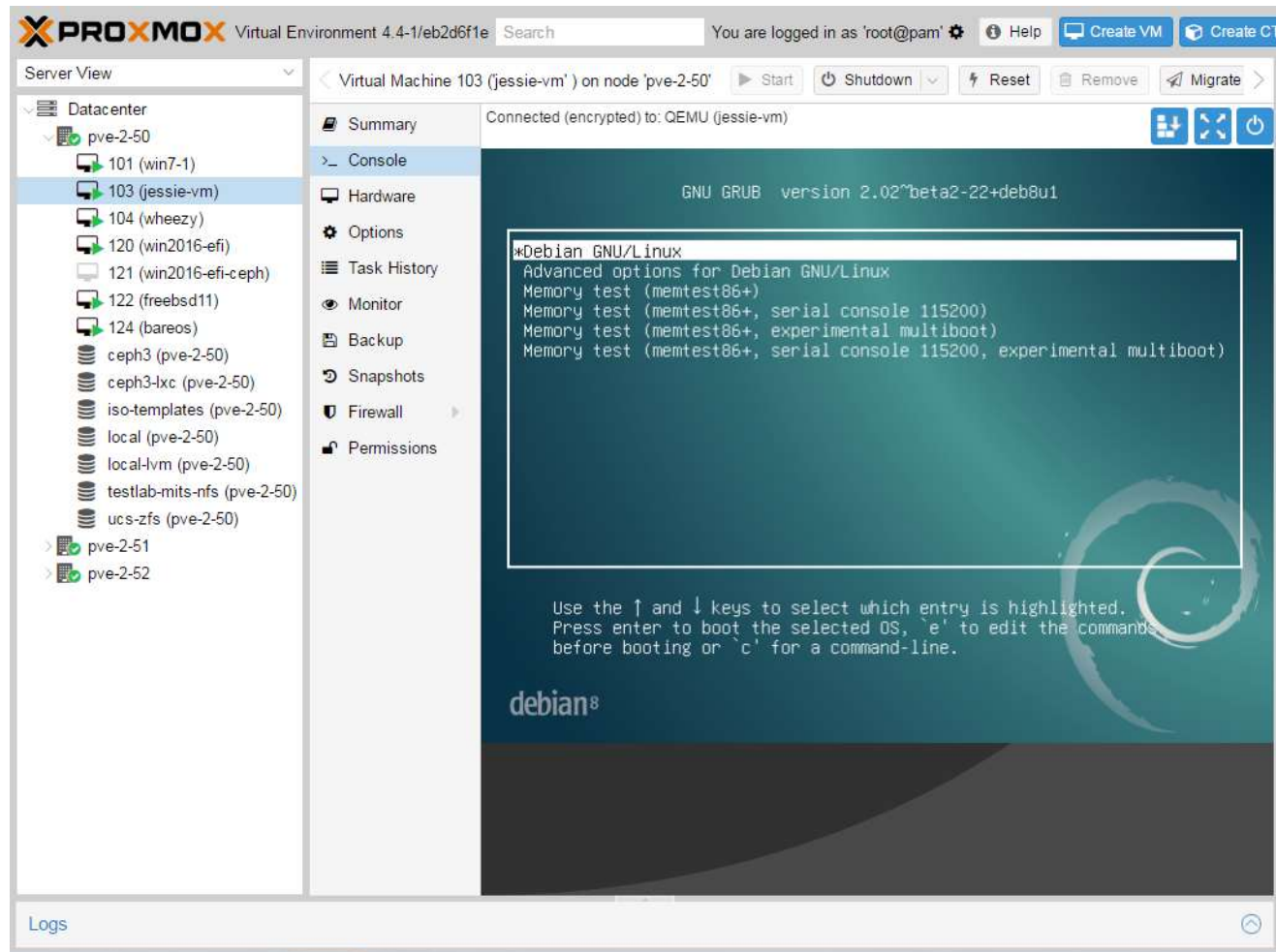
Graphs:

- CPU usage:** A line graph showing CPU usage percentage over time, fluctuating between approximately 10% and 25%.
- Server load:** A line graph showing the average server load over time, fluctuating between 0 and 2.
- Memory usage:** A bar chart showing total memory usage (around 8 GiB) and RAM usage (around 2.35 GiB) over time.

Task History Table:

















Start Time	End Time	Node	User name	Description	Status
Apr 15 05:45:04	Apr 15 05:45:06	vmm01	root@pam	Update package database	Error: command 'apt-get upd...
Apr 14 17:33:15	Apr 14 17:33:16	vmm01	root@pam	VM 219 - Destroy	OK
Apr 14 10:10:53	Apr 14 10:10:54	vmm01	root@pam	VM/CT 219 - Console	Error: Failed to run vncproxy.
Apr 14 10:10:45	Apr 14 10:10:53	vmm01	root@pam	VM 219 - Shutdown	OK
Apr 14 09:58:40	Apr 14 10:10:52	vmm01	root@pam	VM/CT 219 - Console	OK
Apr 14 09:33:16	Apr 14 09:58:39	vmm01	root@pam	VM/CT 219 - Console	OK

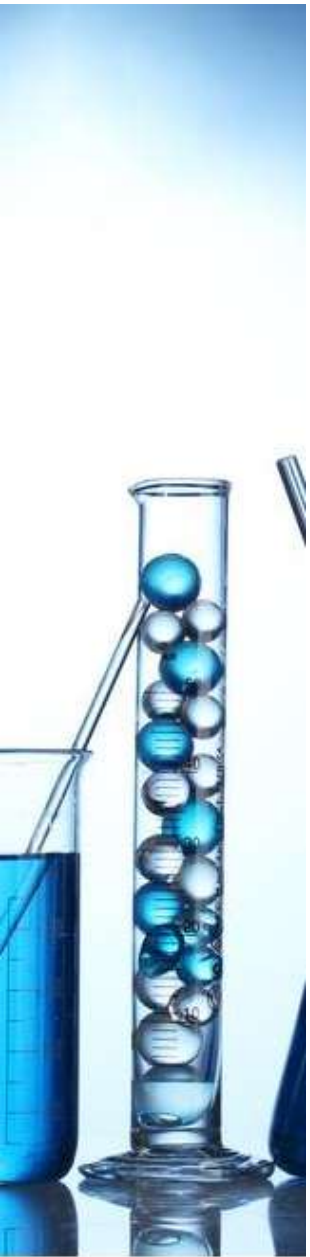
La solution Open Source : Proxmox



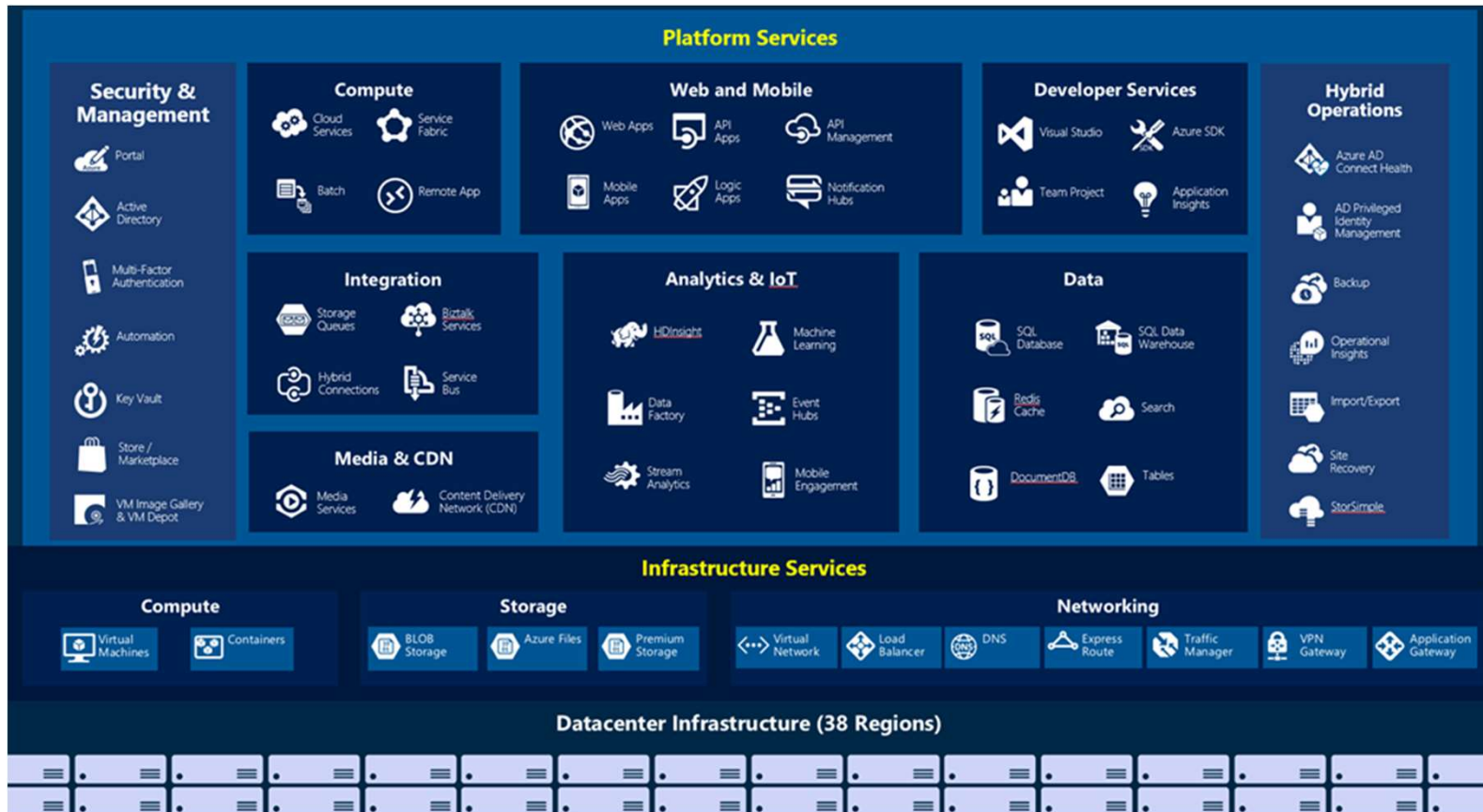
Librairie de VM

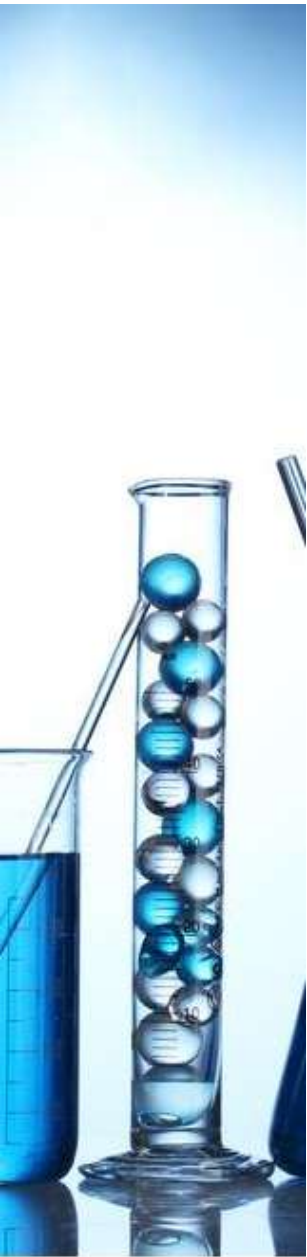
- <https://bitnami.com>

 Apache Solr 4.3 ★ Infrastructure	 Osclass 4.2 ★ Online Classifieds	 ERPNext 4.4 ★ ERP	 Open Atrium 3.3 ★ Project Management
 ownCloud 4.4 ★ Media sharing	 PrestaShop 3.8 ★ e-Commerce	 TestLink 3.9 ★ Testing	 Weblate 4.8 ★ Translation Tools
 MongoDB 0.0 ★ Database	 Zurmo 4.2 ★ CRM	 Canvas LMS 3.7 ★ eLearning	 Discourse 3.7 ★ Forum
 Diaspora	 Dolibarr	 OXID eShop	 Tiny Tiny RSS



Lab 02



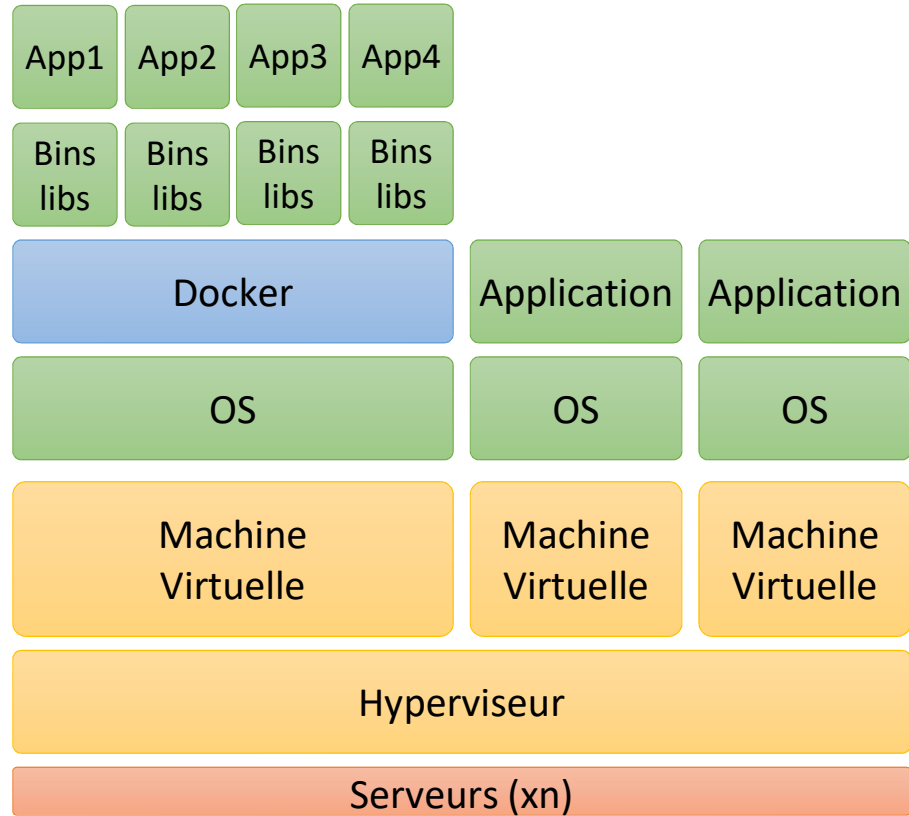
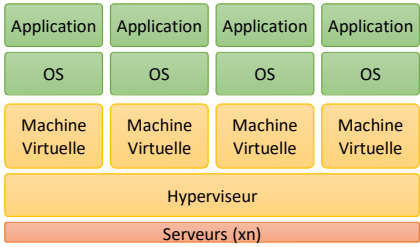


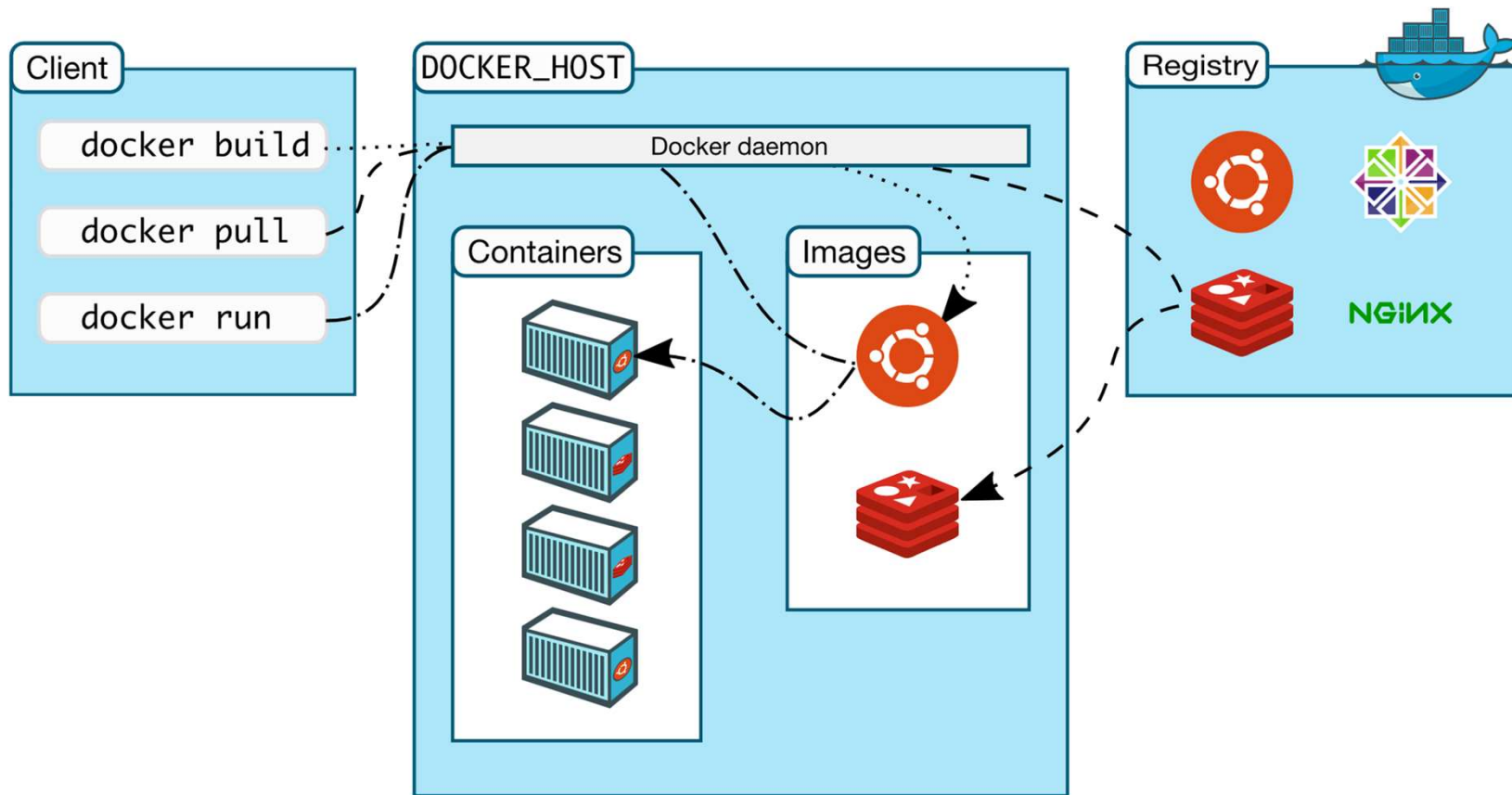
Lab 02: se faire guider par

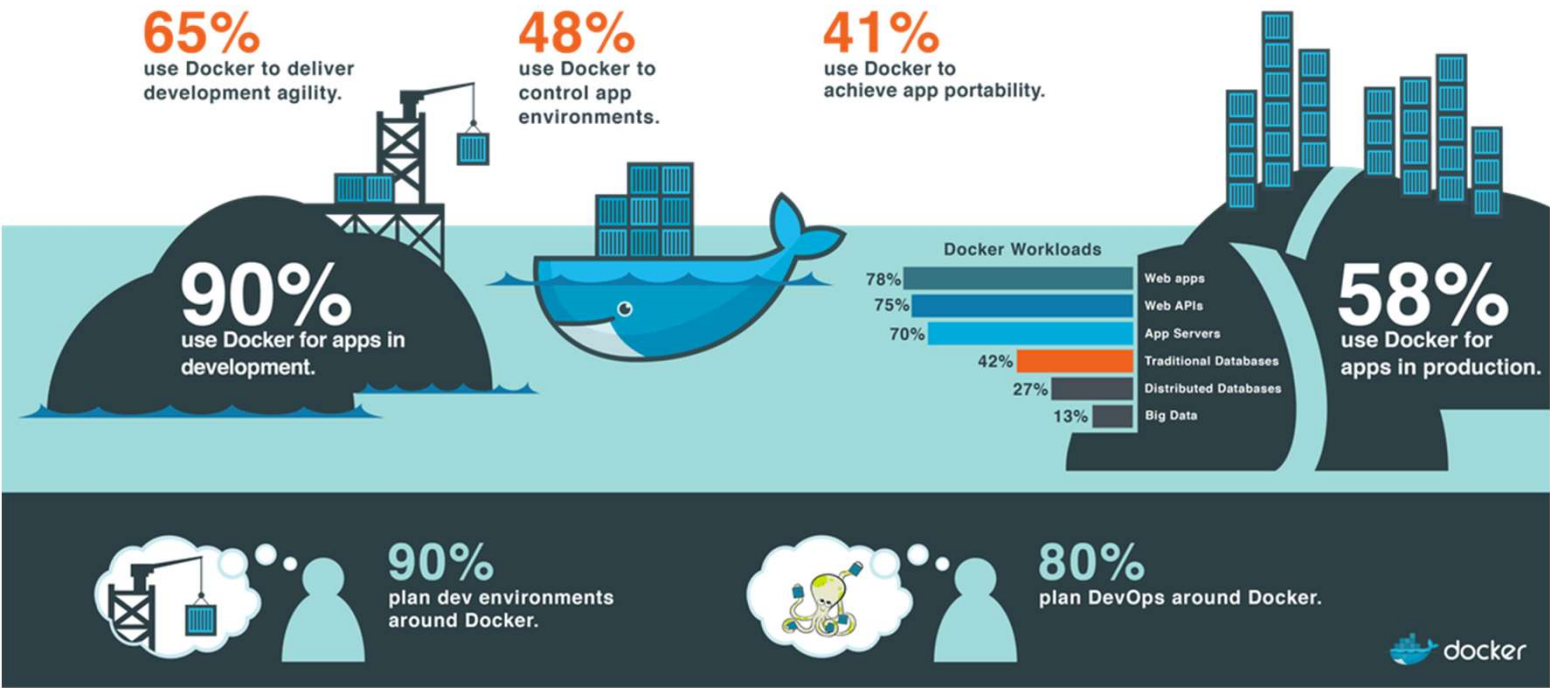
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La virtualisation Docker

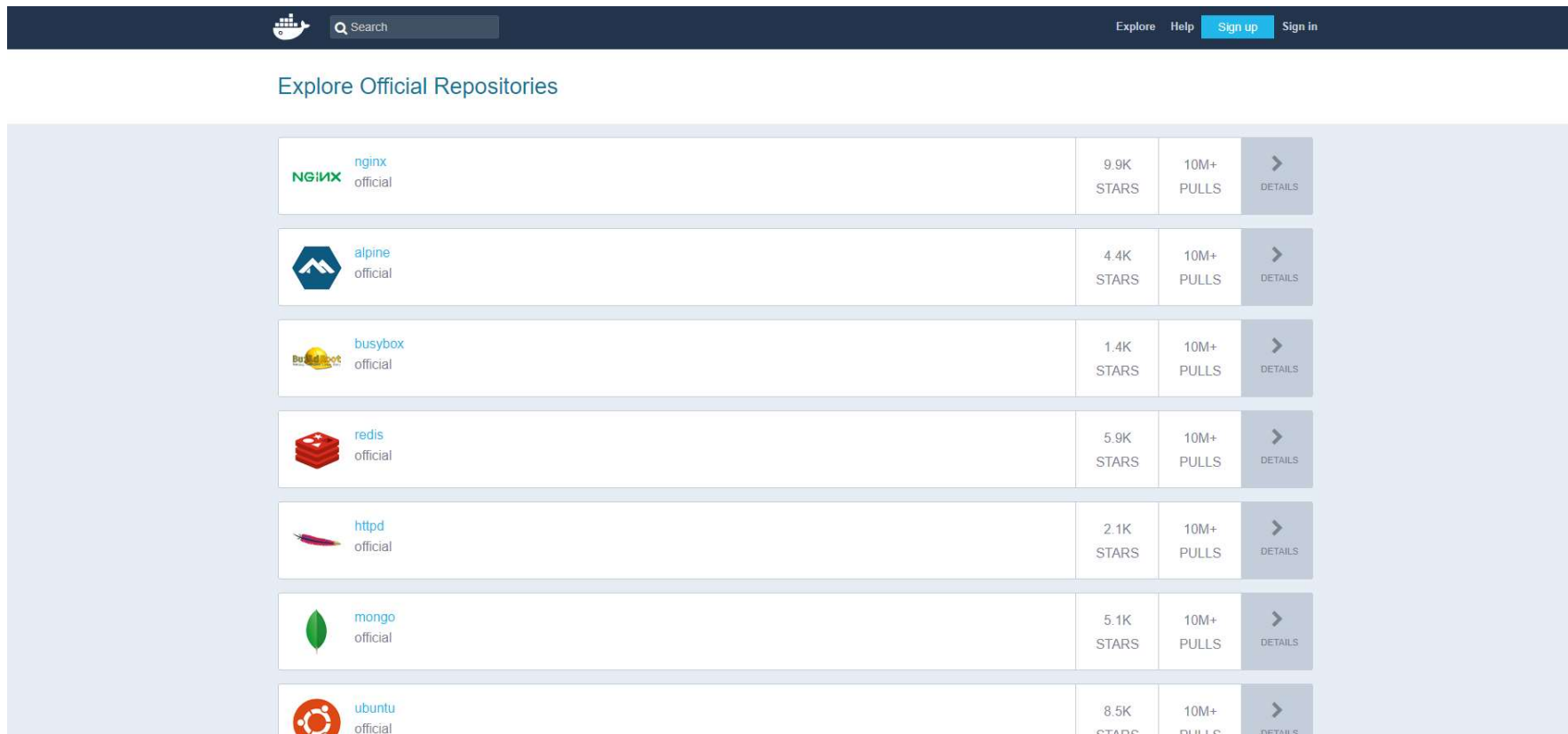













Librairie d'images Docker

- <https://hub.docker.com/explore/>



Explore Official Repositories

 nginx official	9.9K STARS	10M+ PULLS	> DETAILS
 alpine official	4.4K STARS	10M+ PULLS	> DETAILS
 busybox official	1.4K STARS	10M+ PULLS	> DETAILS
 redis official	5.9K STARS	10M+ PULLS	> DETAILS
 httpd official	2.1K STARS	10M+ PULLS	> DETAILS
 mongo official	5.1K STARS	10M+ PULLS	> DETAILS
 ubuntu official	8.5K STARS	10M+ PULLS	> DETAILS

Librairie d'images Docker

- <https://bitnami.com>

Home > Applications > Single-Tier offering

Search applications

WordPress, MongoDB, TensorFlow...

Filter by Deployment Offering

Single-Tier

Multi-Tier

Containers

Helm Charts

Win / Mac / Linux

Virtual Machines



Drupal

4.7 ★

CMS



Joomla!

3.9 ★

CMS



Plone

4.8 ★

CMS



DokuWiki

4.5 ★

Wiki



WordPress



Liferay

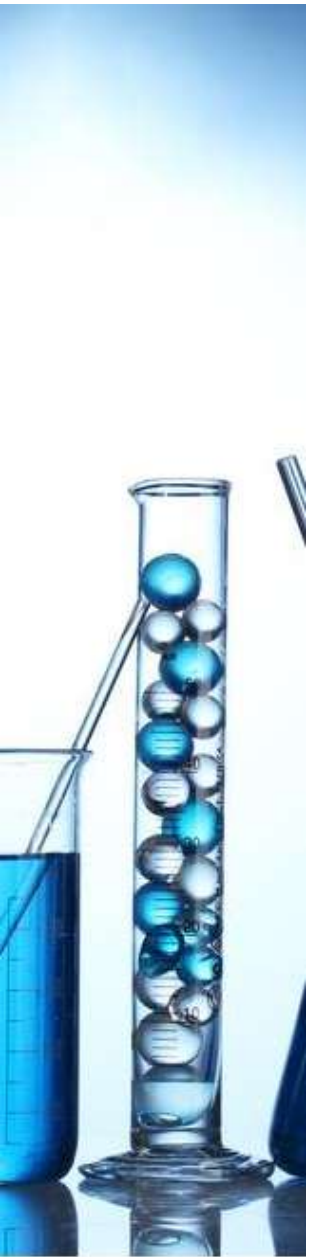


Alfresco Community



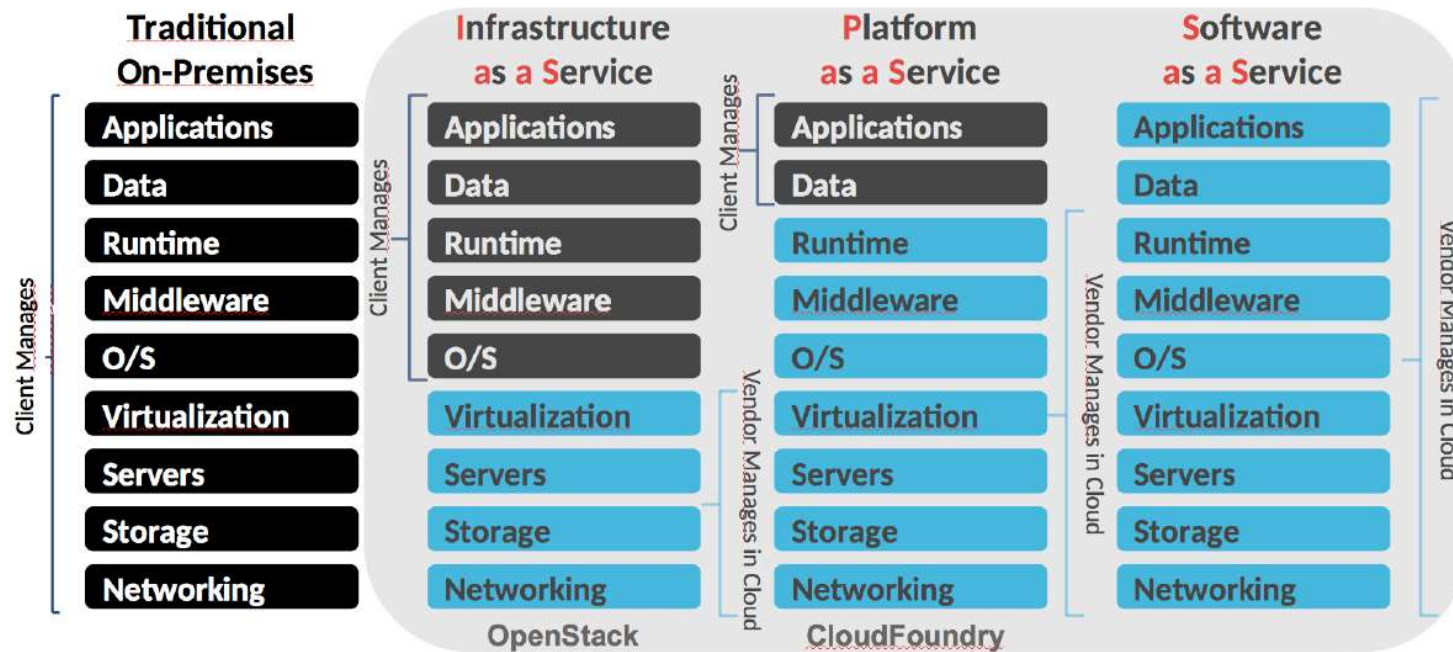
MediaWiki

TalanSolutions*



Lab 03

IBM Cloud



Customization; higher costs; slower time to value

Standardization; lower costs; faster time to value



Cloud Foundry Apps

- Provides a set of resources used to run the application
- Allows you to get your application up and running with no need to set up and manage hardware, operating systems, or servers













 Liberty for Java™ Develop, deploy, and scale Java web apps with ease. IBM IBM	 SDK for Node.js™ Develop, deploy, and scale server-side JavaScript® apps. IBM	 ASP.NET Core Develop, deploy, and scale ASP.NET Core web apps with ease. IBM
 Runtime for Swift A Kitura based server application that you can use as a starting point. IBM	 XPages Develop, deploy and scale IBM XPages applications with ease. IBM	 Go Develop, deploy, and scale Go web apps with ease. Community
 PHP Develop, deploy, and scale PHP web apps with ease. Community	 Python Develop, deploy, and scale Python web apps with ease. Community	 Ruby Develop, deploy, and scale Ruby web apps with ease. Community



Services

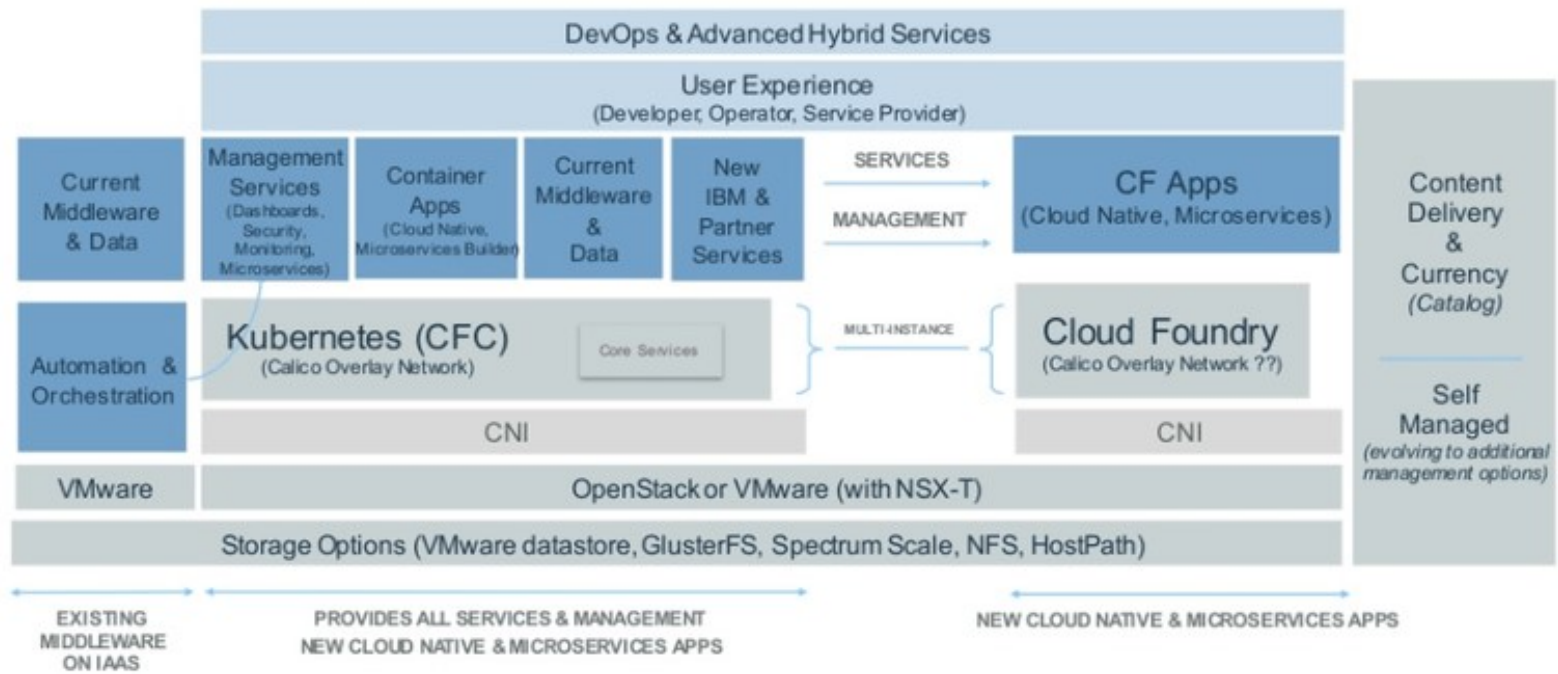
- Cloud extension that provides ready-for-use functionality
- Can add single or multiple services to any application

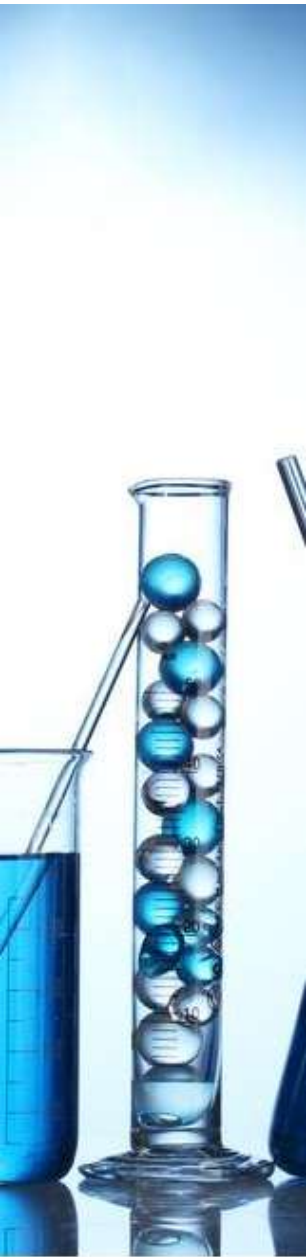
Build cognitive apps that help enhance, scale, and accelerate human expertise.

 Conversation Add a natural language interface to your application to automate interactions with customers. Lite IBM	 Discovery Add a cognitive search and content analytics engine to applications. IBM	 Document Conversion Converts a HTML, PDF, or Microsoft Word™ document into a normalized HTML, plain text, or JSON document. IBM
 Language Translator Translate text from one language to another for specific domains. Lite IBM	 Natural Language Classifier Natural Language Classifier performs natural language classification on questions and answers. IBM	 Natural Language Understanding Analyze text to extract meta-data from content such as concepts, entities, emotions, and sentiment. IBM
 Personality Insights The Watson Personality Insights derives insights from transactional and social media content. Lite IBM	 Retrieve and Rank Add machine learning enhanced search capabilities to your application. IBM	 Speech to Text Low-latency, streaming transcription. IBM
 Text to Speech Synthesizes natural-sounding speech from text. IBM	 Tone Analyzer Tone Analyzer uses linguistic analysis to detect three types of tones from text. Lite IBM	 Visual Recognition Find meaning in visual content! Analyze images for scenes, objects, faces, and more. IBM



IBM Cloud Private – End to End Architecture





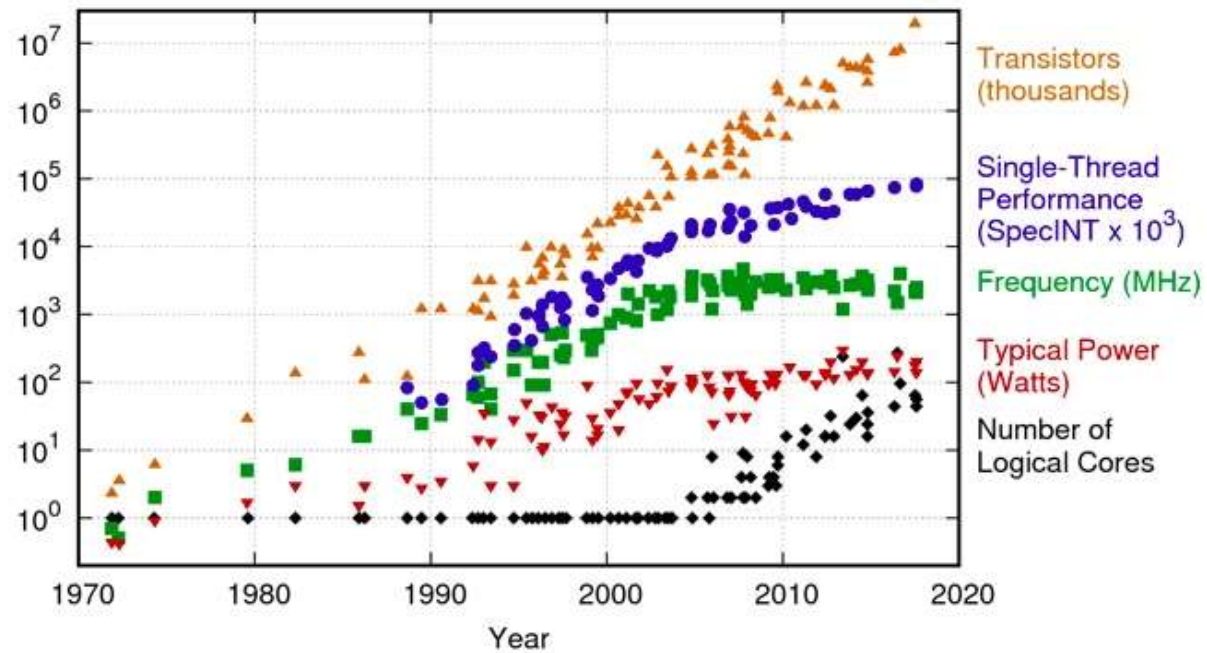
Lab 02: se faire guider par

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Loi de Moore

42 Years of Microprocessor Trend Data



Original data up to the year 2010 collected and plotted by M. Horowitz, F. Labonte, O. Shacham, K. Olukotun, L. Hammond, and C. Batten
New plot and data collected for 2010-2017 by K. Rupp

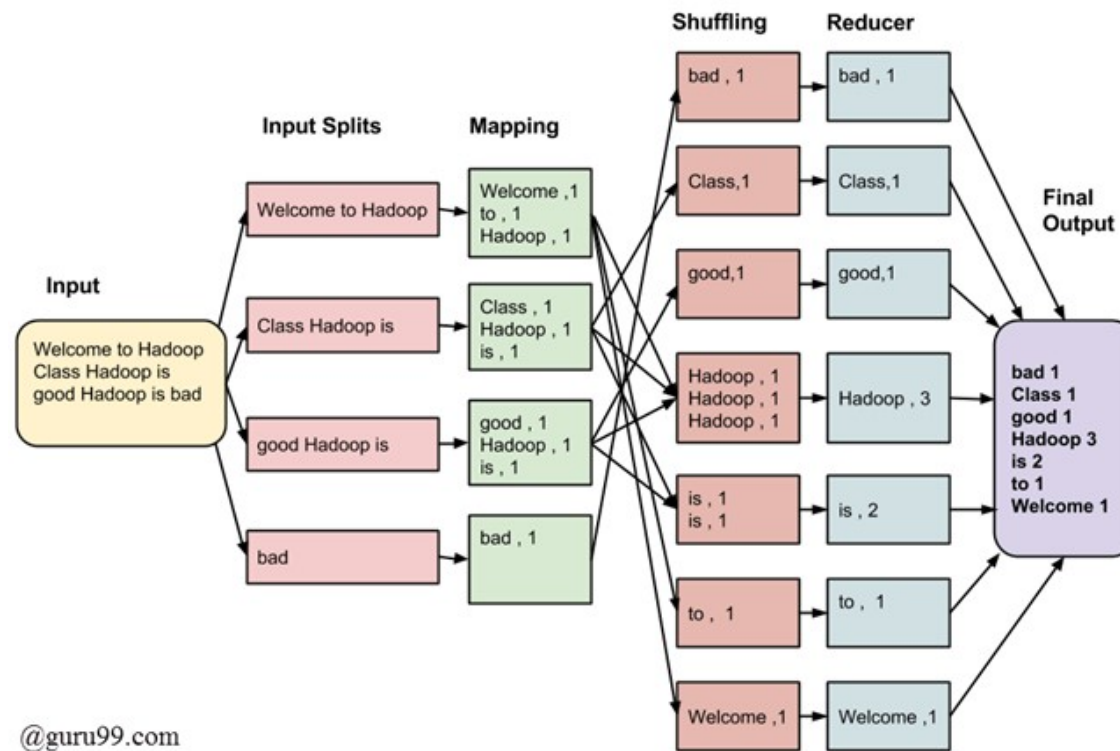
<https://www.karlrupp.net/2018/02/42-years-of-microprocessor-trend-data/>



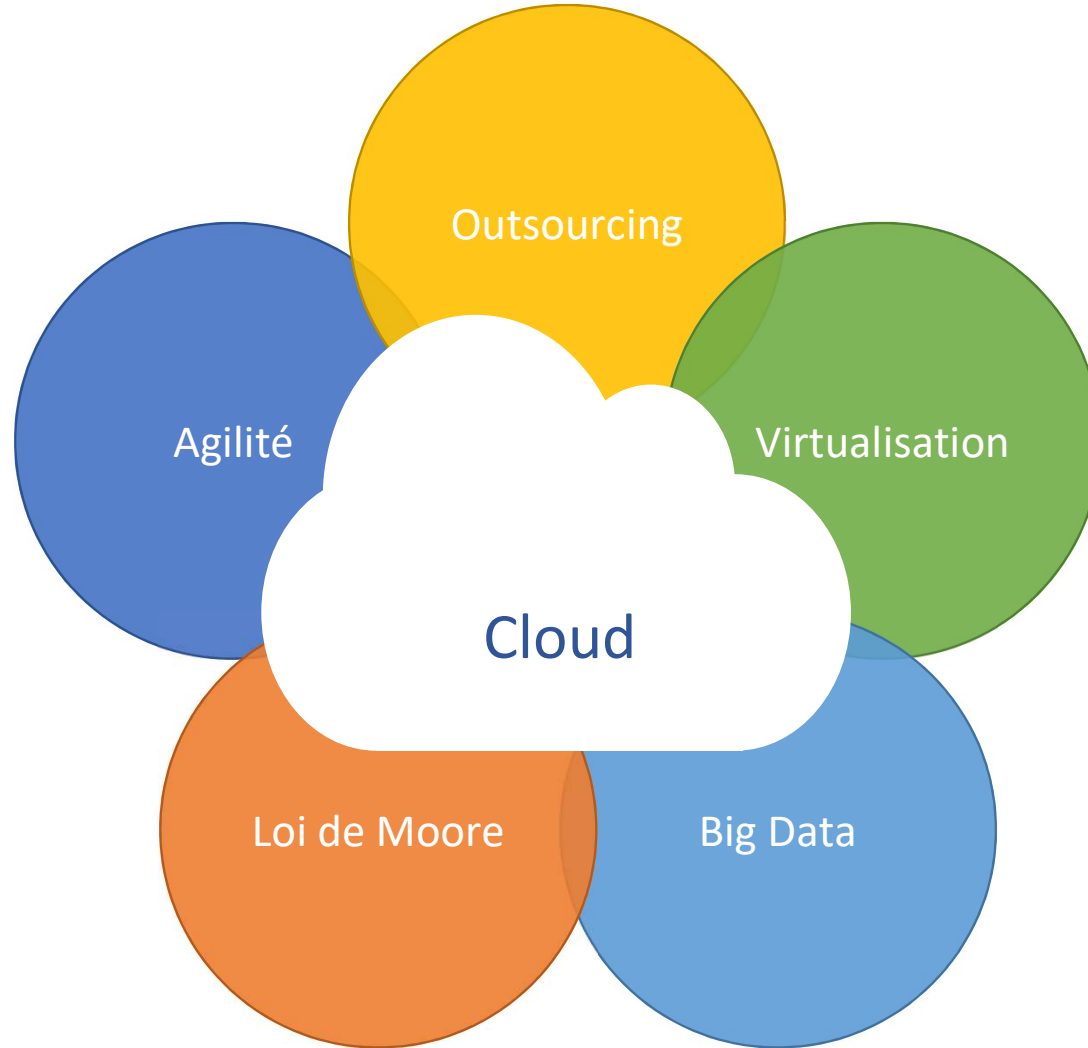
Big Data

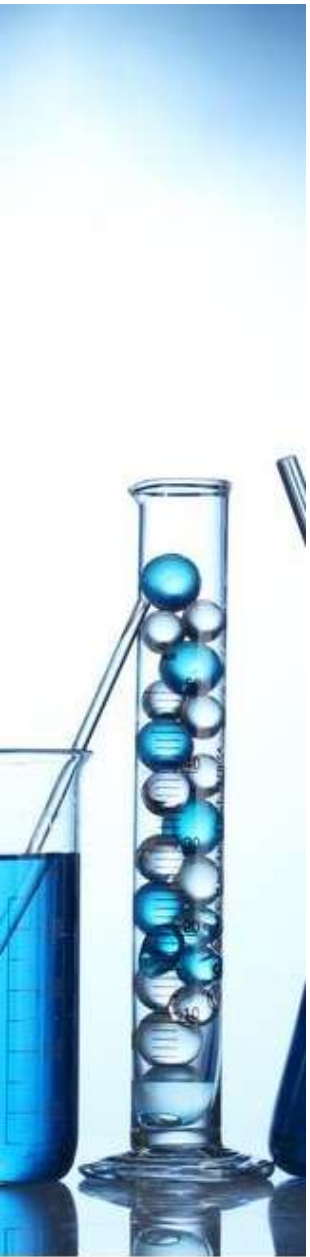


Fin de la loi de Moore + Big Data = traitement distribué (parallèle)

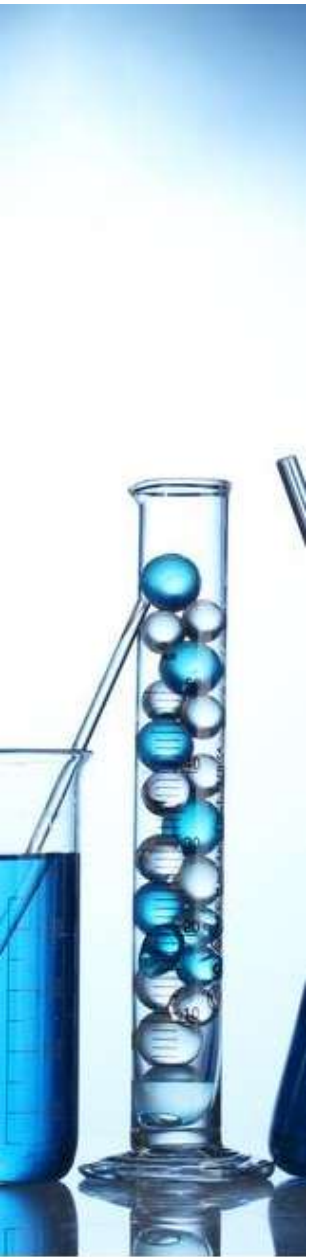


@guru99.com





Lab 04



Lab 05 : Cloud BI

A satellite view of Earth at night, showing the illuminated continents of Europe and Africa. The city lights create a dense pattern of yellow and white dots across the landmasses, contrasting with the dark blue and black of the oceans and the night sky. The curvature of the Earth is visible at the top and bottom edges of the frame.

Talan Solutions[★]

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