
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 différents 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

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" ?


Y!


Gmail


Outlook


Microsoft
Office 365


Google
Docs


hubiC


Google Drive


OneDrive


DEEZER


Spotify


You
Tube


NETFLIX


HASHFLARE


Genesis
Mining


gog
com


STEAM


SHADOW


NVIDIA
GEFORCE NOW
BETA


parsec


IBM Watson


salesforce


IBM Cloud


amazon
web services


Microsoft
Azure


My Cloud


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Introduction

Evolution du web

- **Web 1.0 :** Pages HTML + Hyperliens. Il permet une navigation fluide entre les différentes pages. Le paradis de l'encyclopédie.

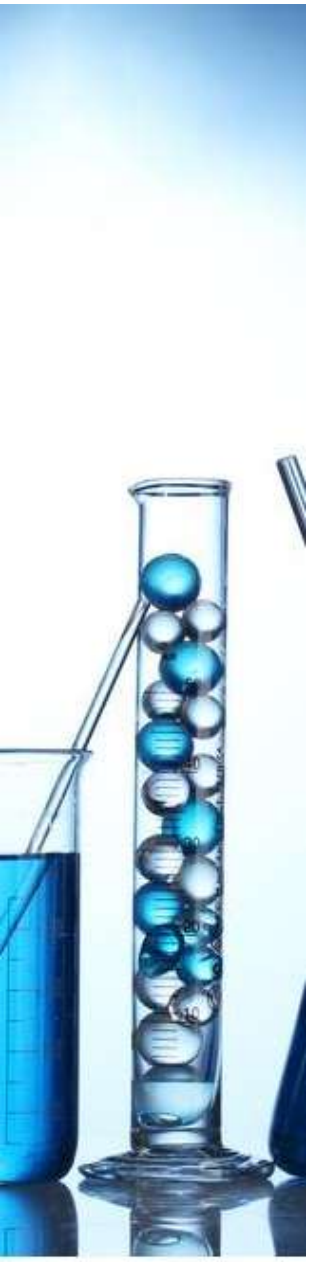
- **Web 2.0 :** Web 1.0 + Wiki. Le web devient dynamique et l'encyclopédie coopérative. Découlent les blogs, les réseaux sociaux.

- **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

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Infrastructure & Architecture SI

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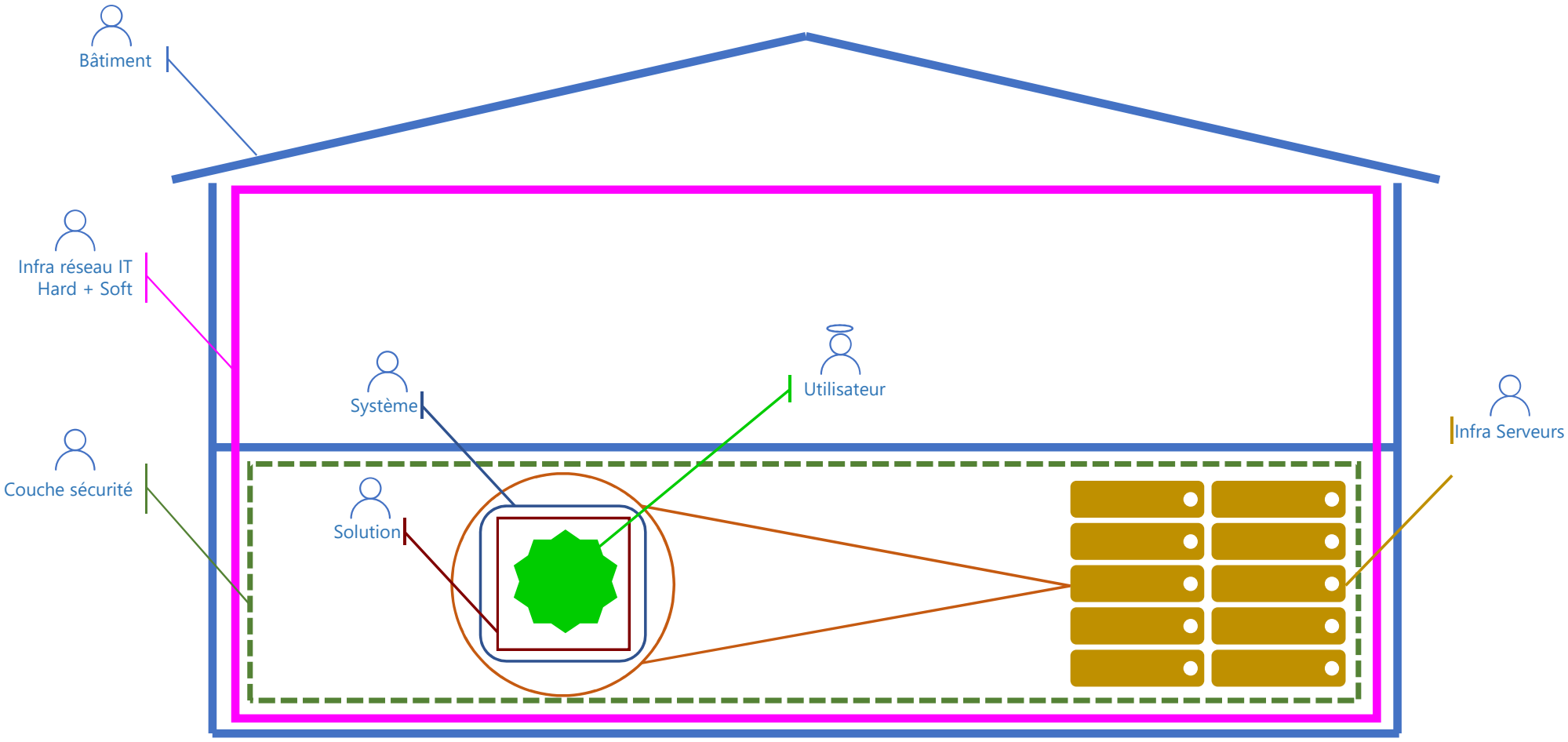
Un peux d'architecture IT (Vision grossière)



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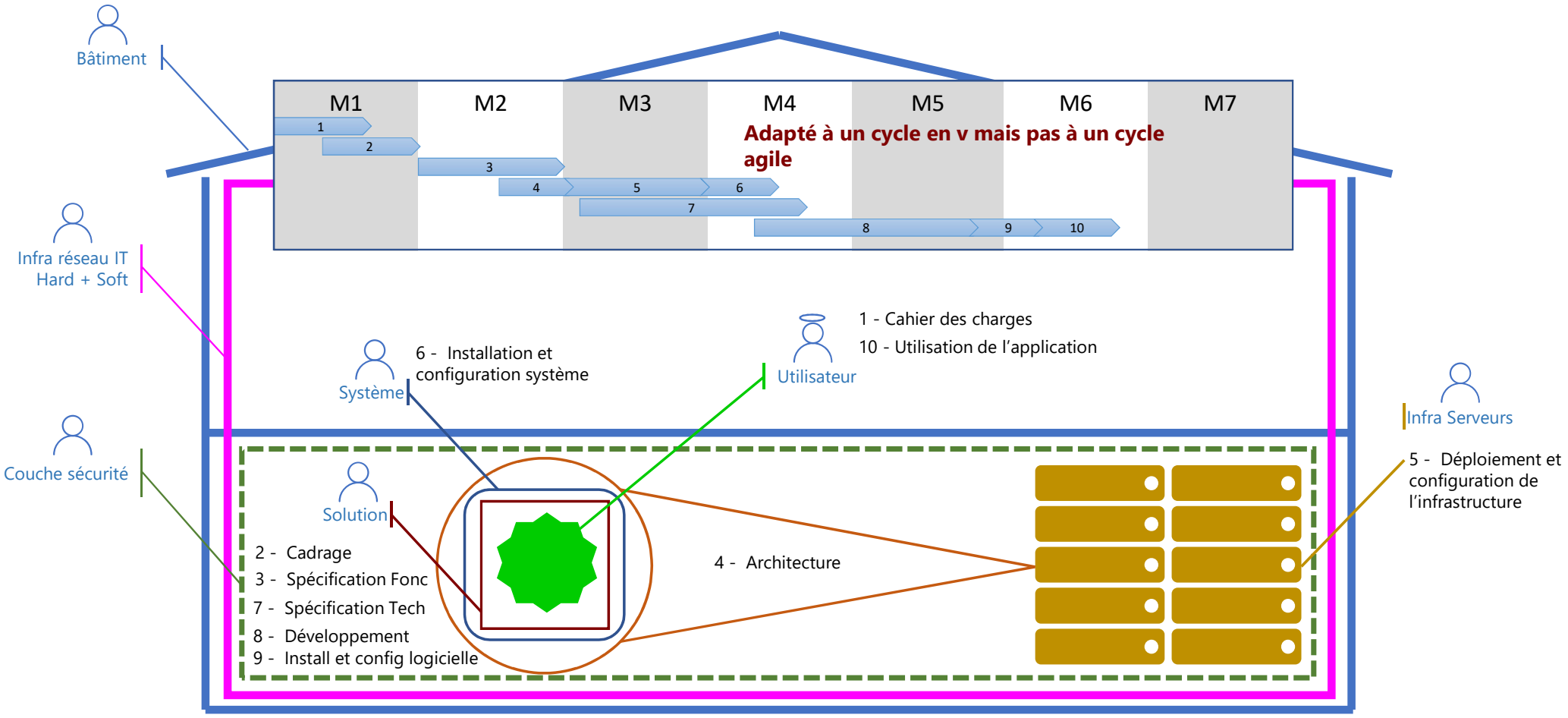
Mise en place d'une application(Vision grossière)



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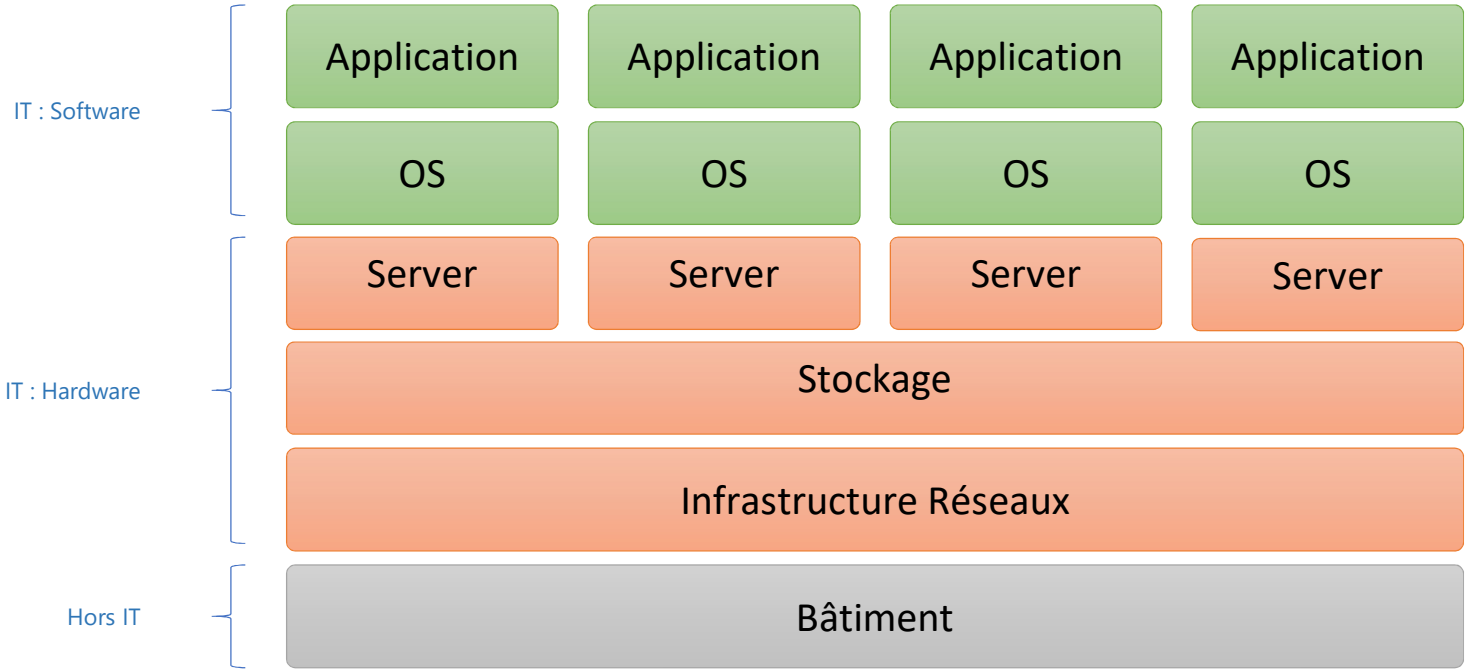
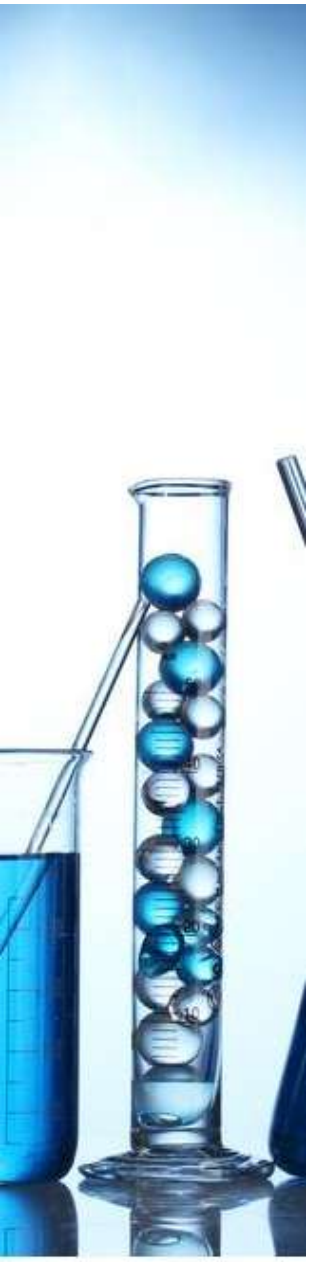

IT : Software
IT : Hardware
Hors IT
Application
Application
Application
Application
OS
OS
OS
OS
Server
Server
Server
Server
Stockage
Infrastructure Réseaux
Bâtiment

Handicapes d'un 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

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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)

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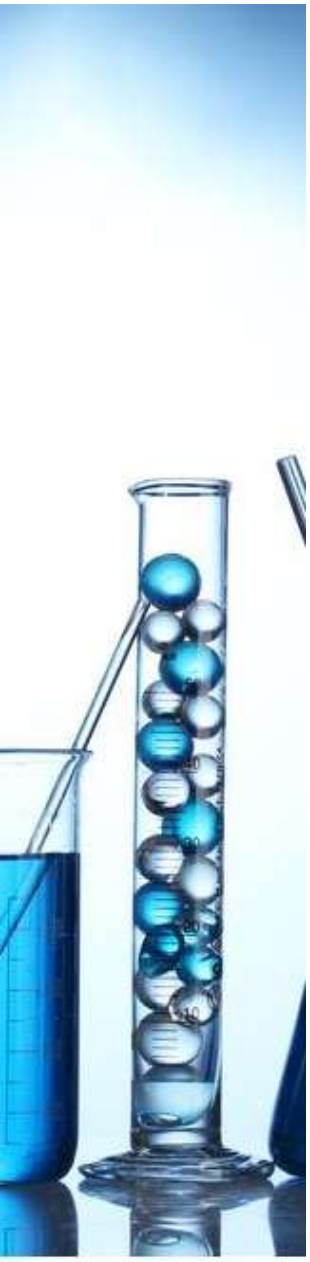

Lab 0 & 1 : se faire guider par

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Agilité

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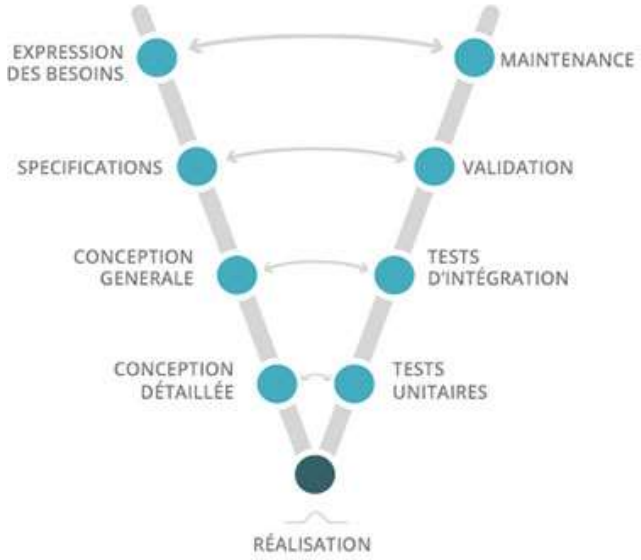
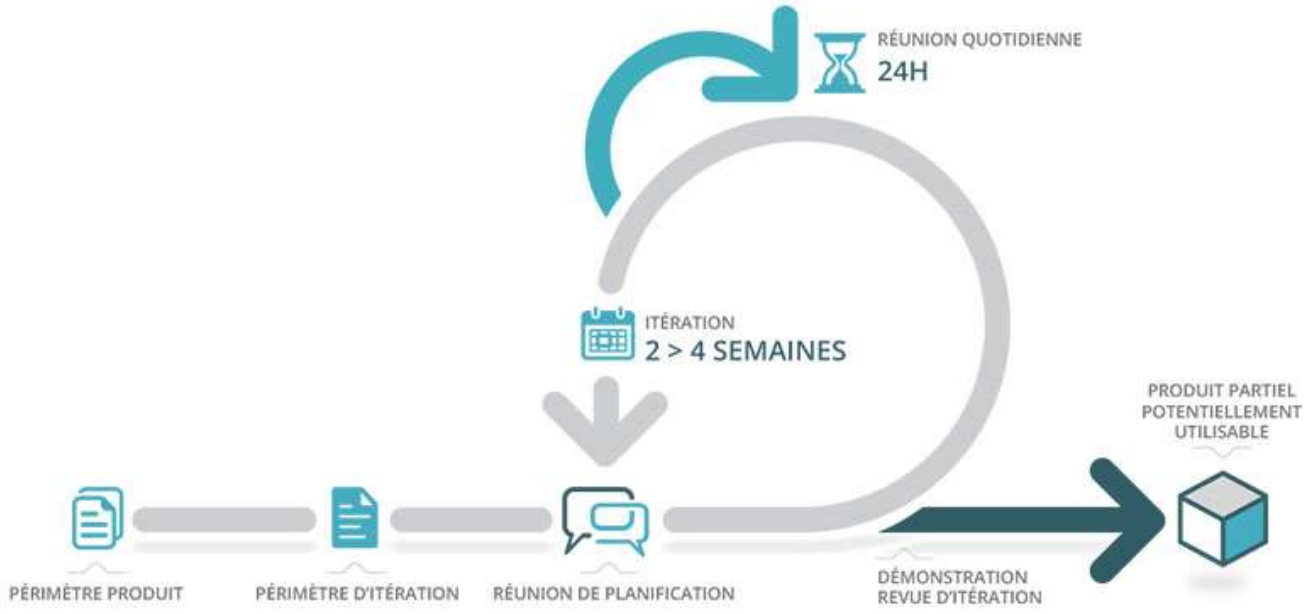


LA MÉTHODE EN V



LA MÉTHODE AGILE

La virtualisation

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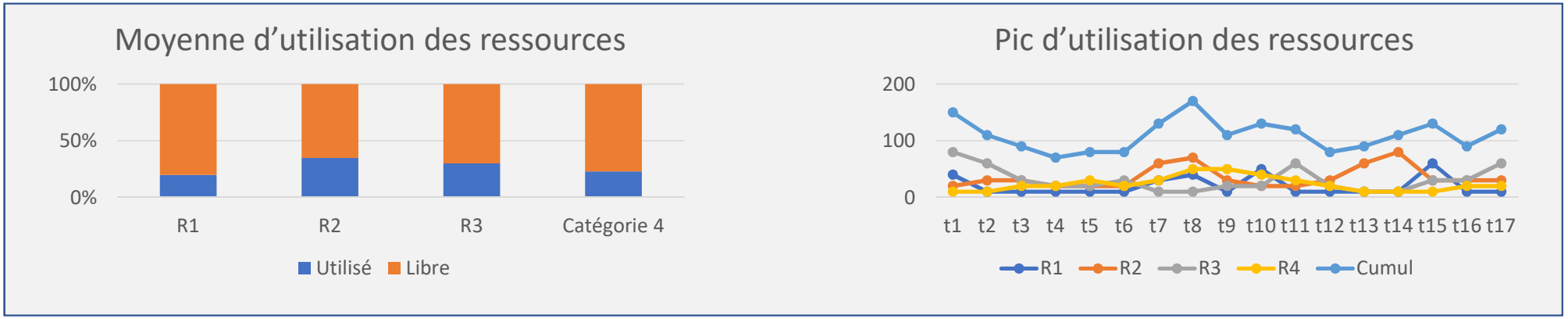
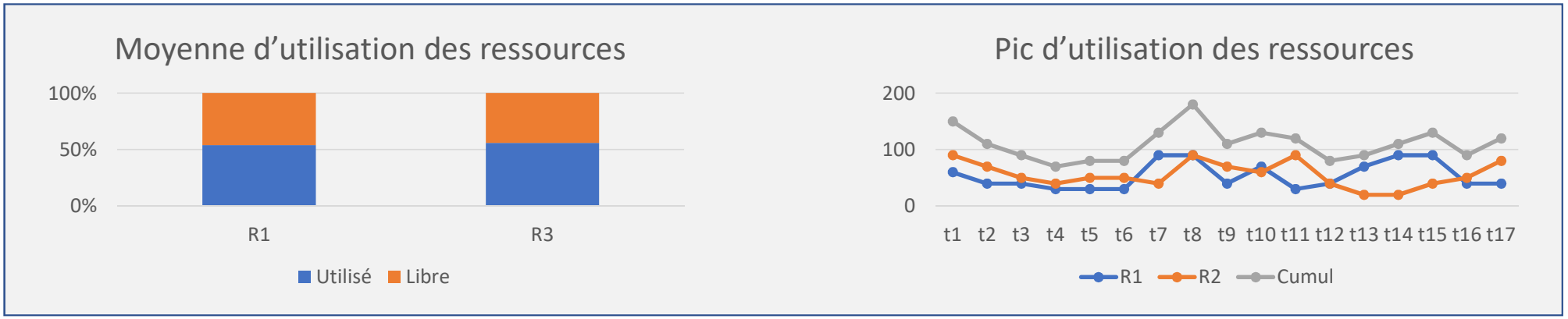
Toute cette perte !





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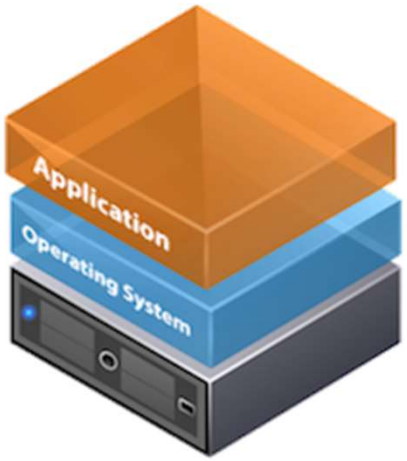

Serveur physique
1 serveur = 1 système d'exploitation

Serveur virtualisé
1 serveur = plusieurs VMs

Application
OS
Serveurs (xn)
Stockage
Infrastructure Réseaux
Bâtiment

IT : Software

Application | Application | Application | Application

OS | OS | OS | OS

IT : Virtualisation

Paramétrage centralisé

Machine Virtuelle | Machine Virtuelle | Machine Virtuelle | Machine Virtuelle

Hyperviseur

Stockage Virtuel

Réseau virtuel

IT : Hardware

Infrastructures massives, standardisées et simplifiées (Datacenter)

Hors IT

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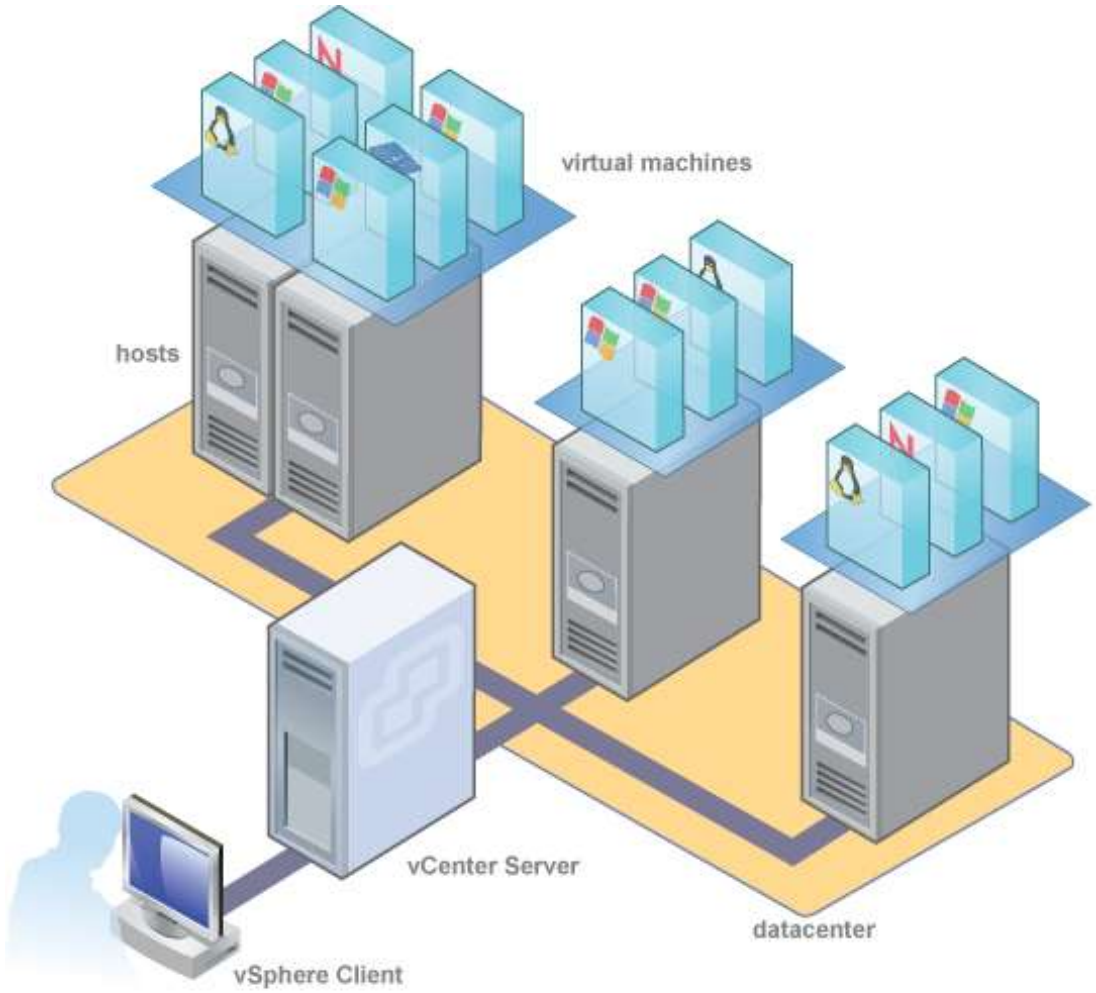
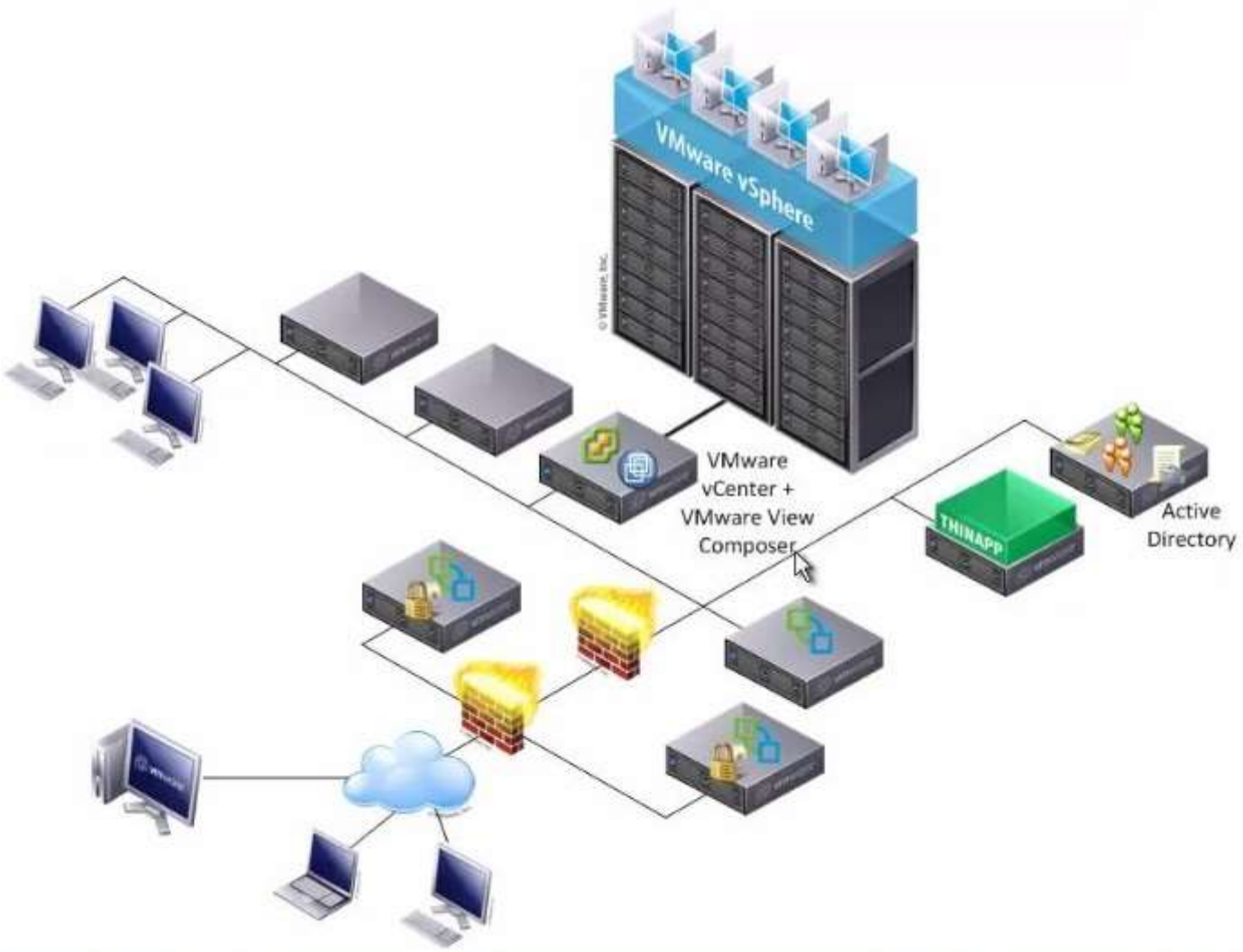

virtual machines
hosts
vCenter Server
datacenter
vSphere Client



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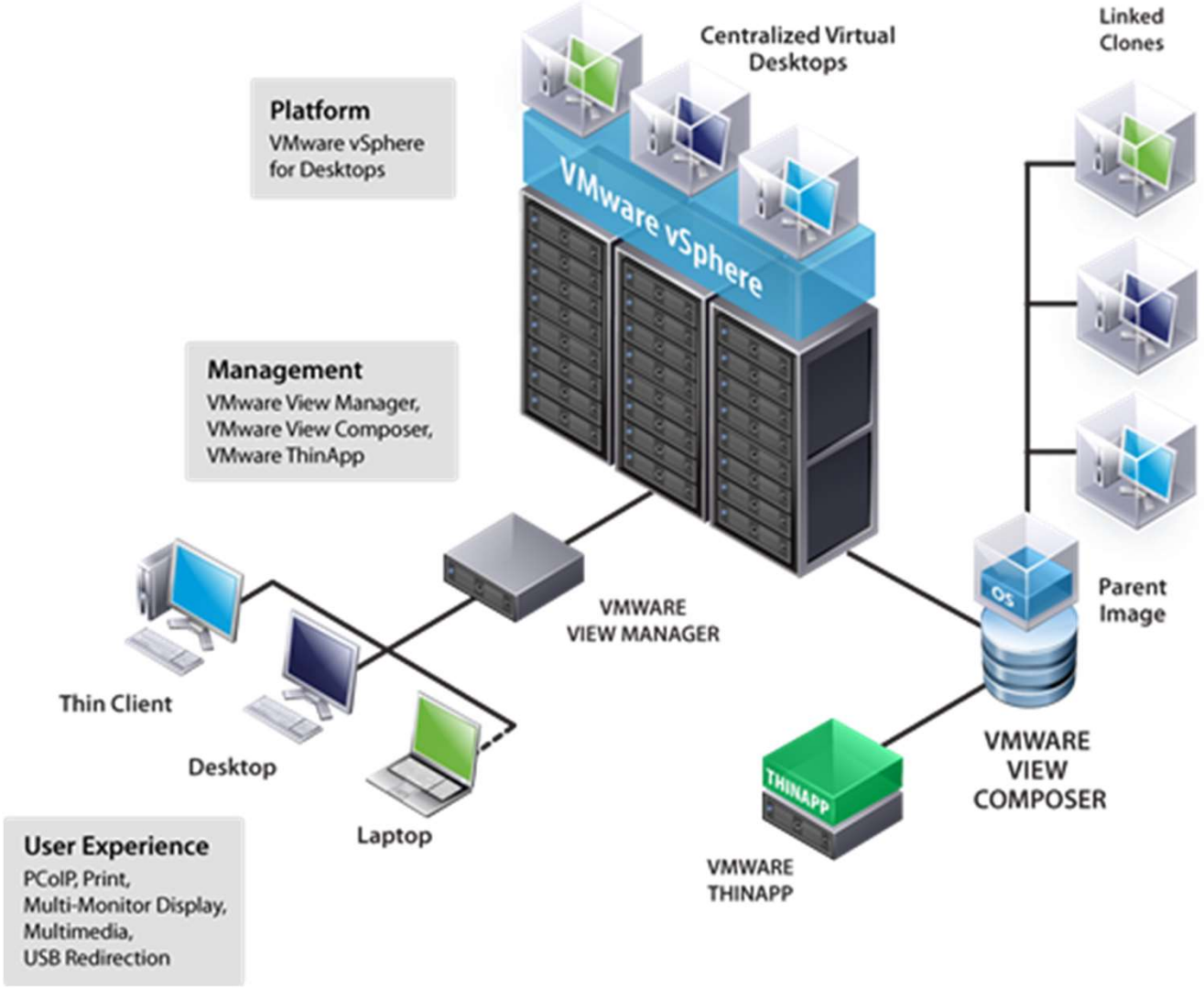

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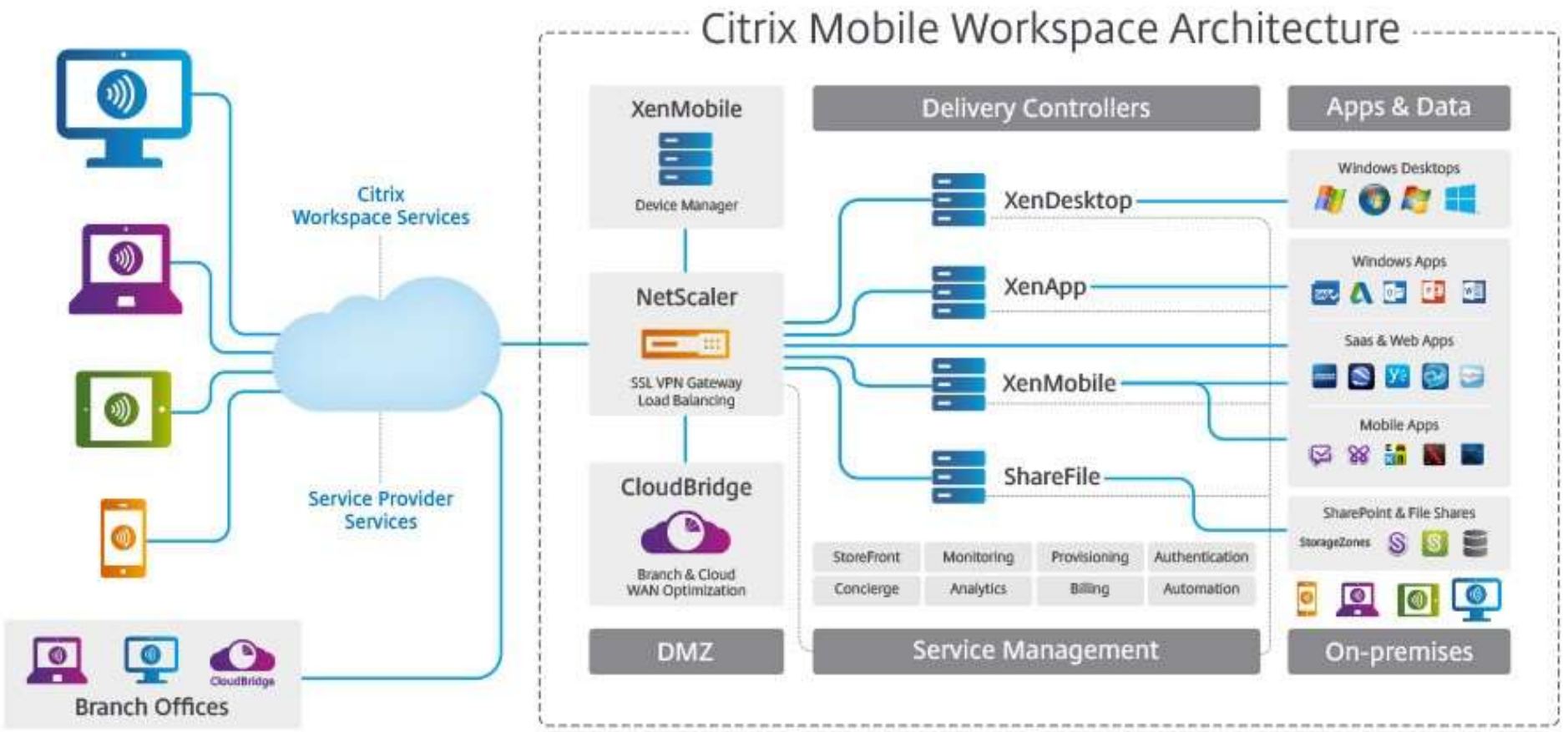
Citrix Mobile Workspace Architecture
Citrix
Workspace Services
Service Provider
Services
Branch Offices
CloudBridge
XenMobile
Device Manager
NetScaler
SSL VPN Gateway
Load Balancing
CloudBridge
Branch & Cloud
WAN Optimization
DMZ
Delivery Controllers
XenDesktop
XenApp
XenMobile
ShareFile
StoreFront
Monitoring
Provisioning
Authentication
Concierge
Analytics
Billing
Automation
Service Management
Apps & Data
Windows Desktops
Windows Apps
Saas & Web Apps
Mobile Apps
SharePoint & File Shares
StorageZones
On-premises

Gartner Magic Quadrant 2016

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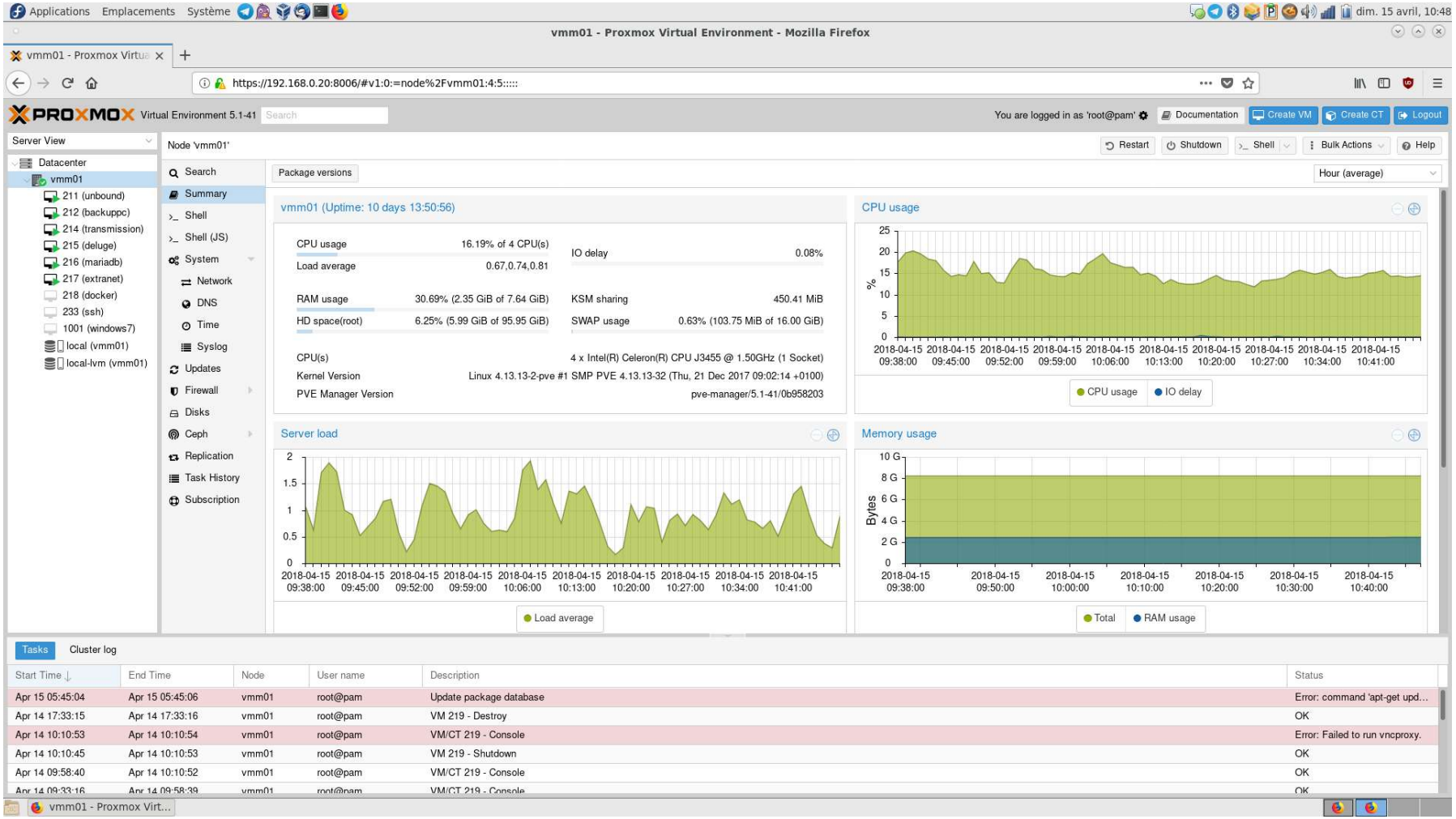
La solution Open Source : Proxmox



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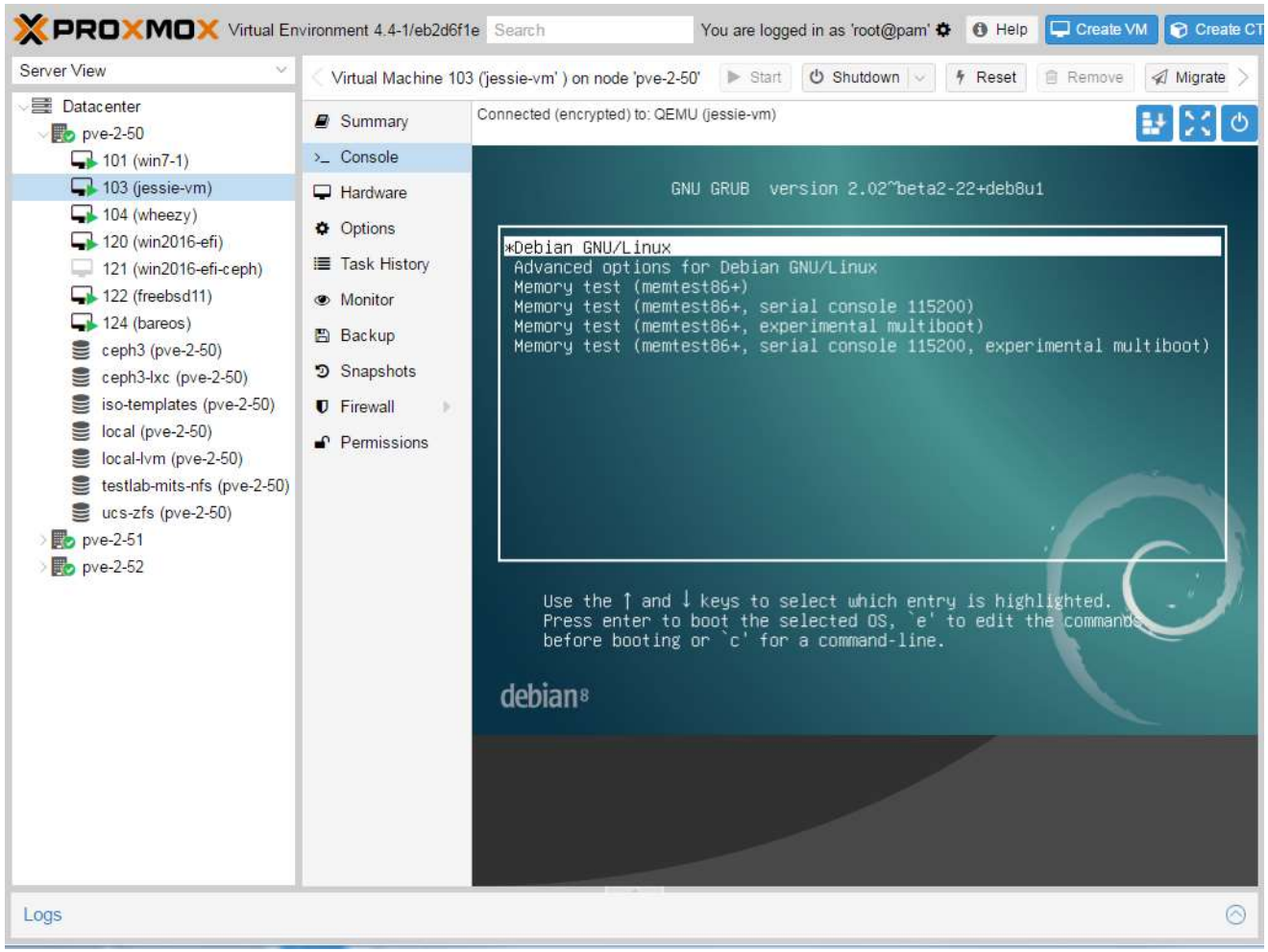

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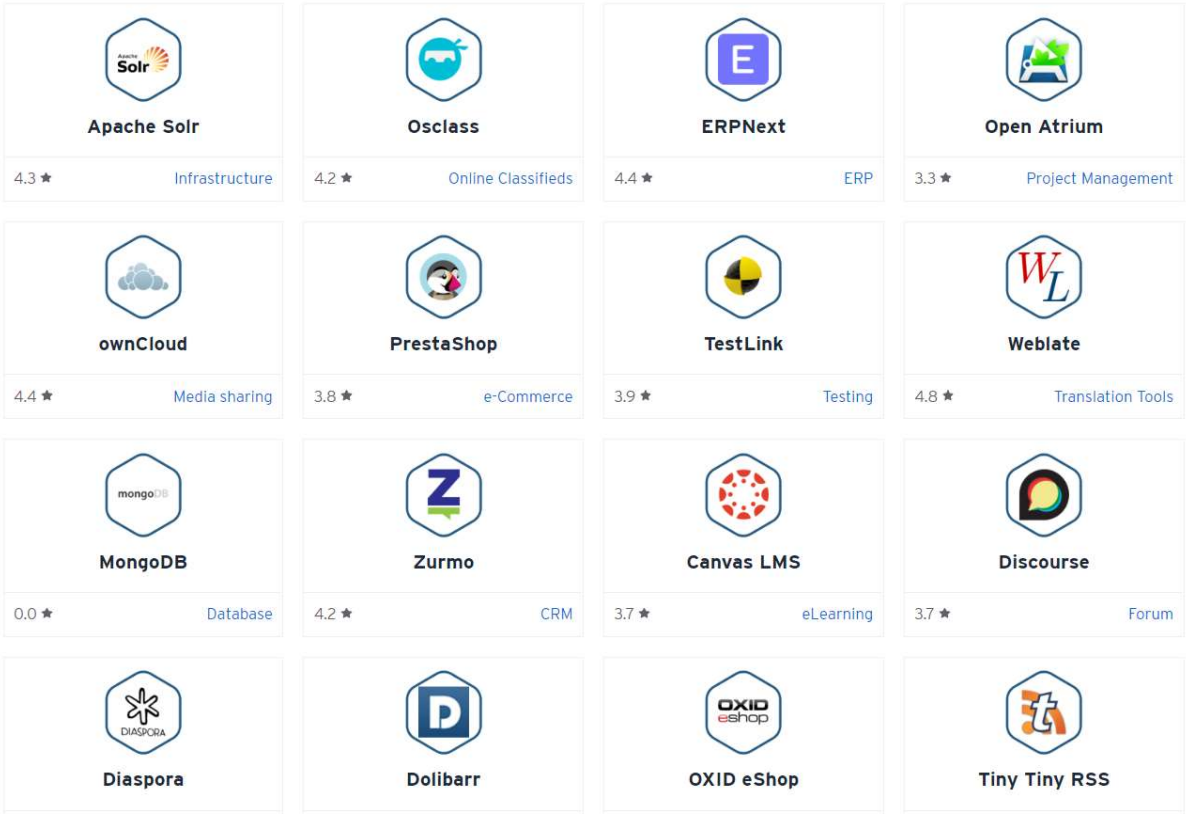
Librairie de VM

- https://bitnami.com



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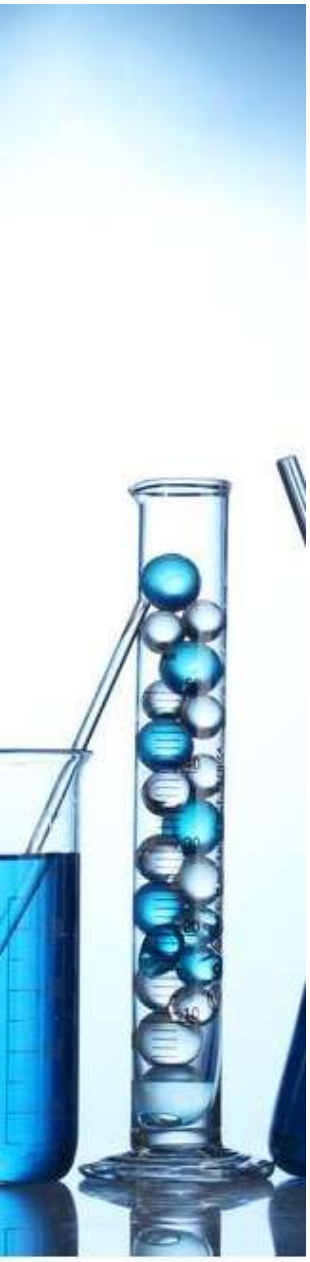

Lab 02

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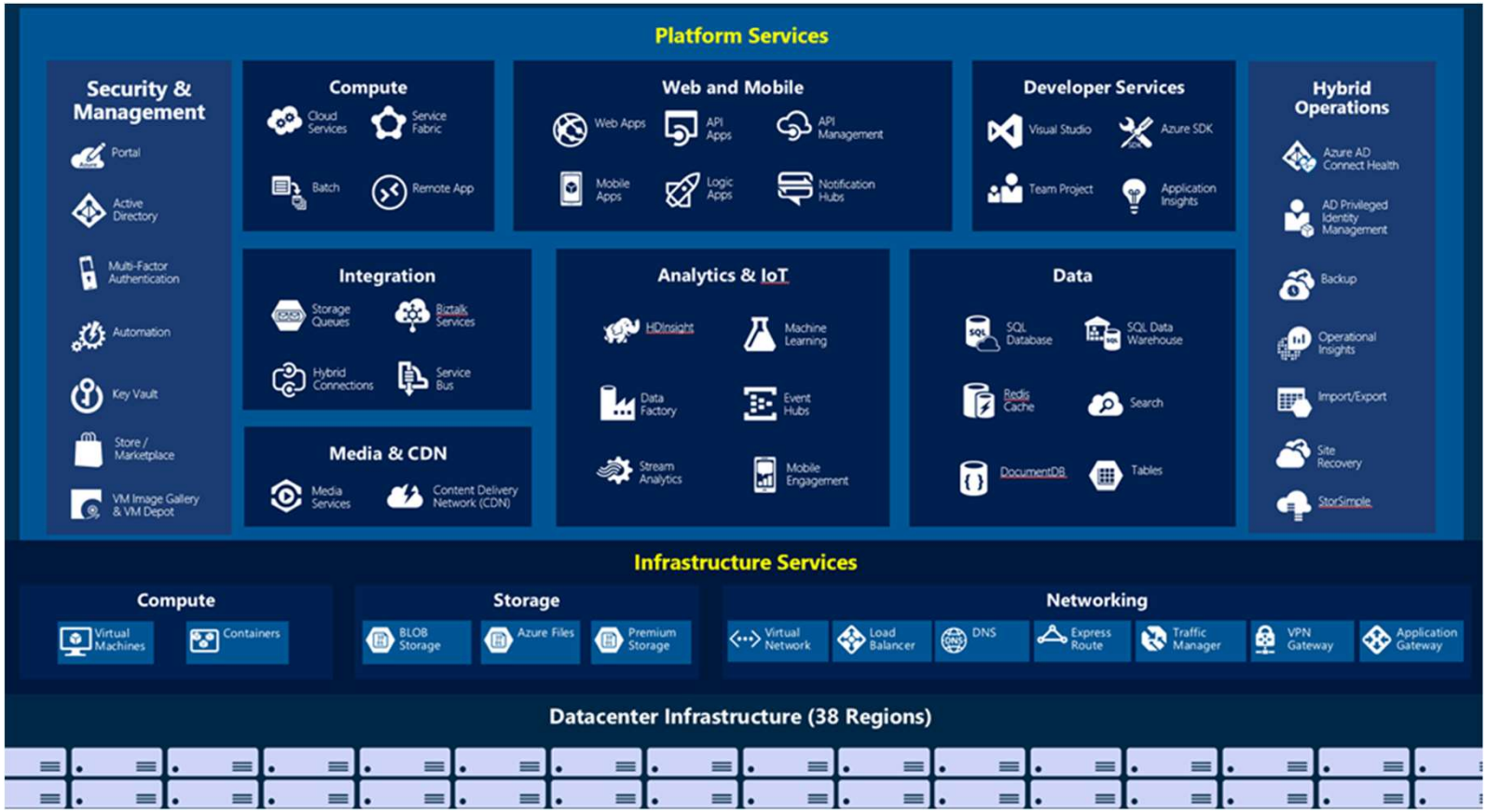

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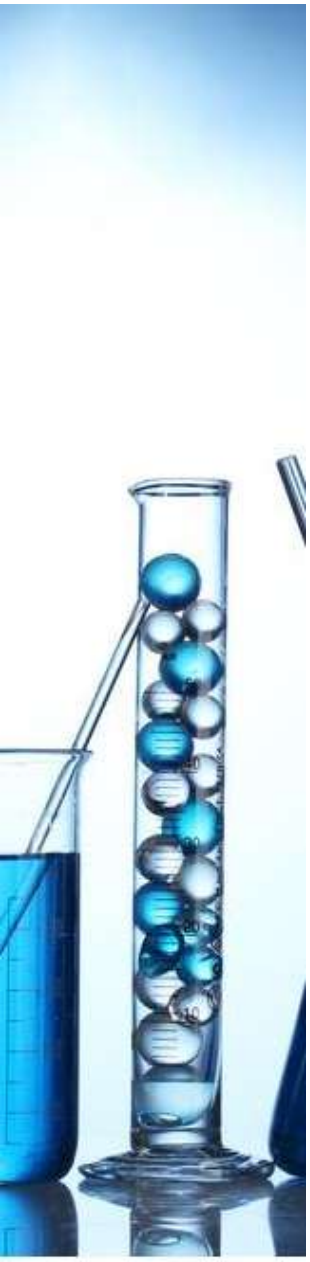

Lab 02: se faire guider par

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La virtualisation Docker

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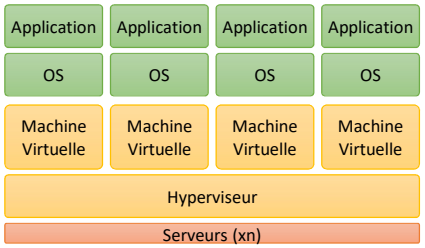

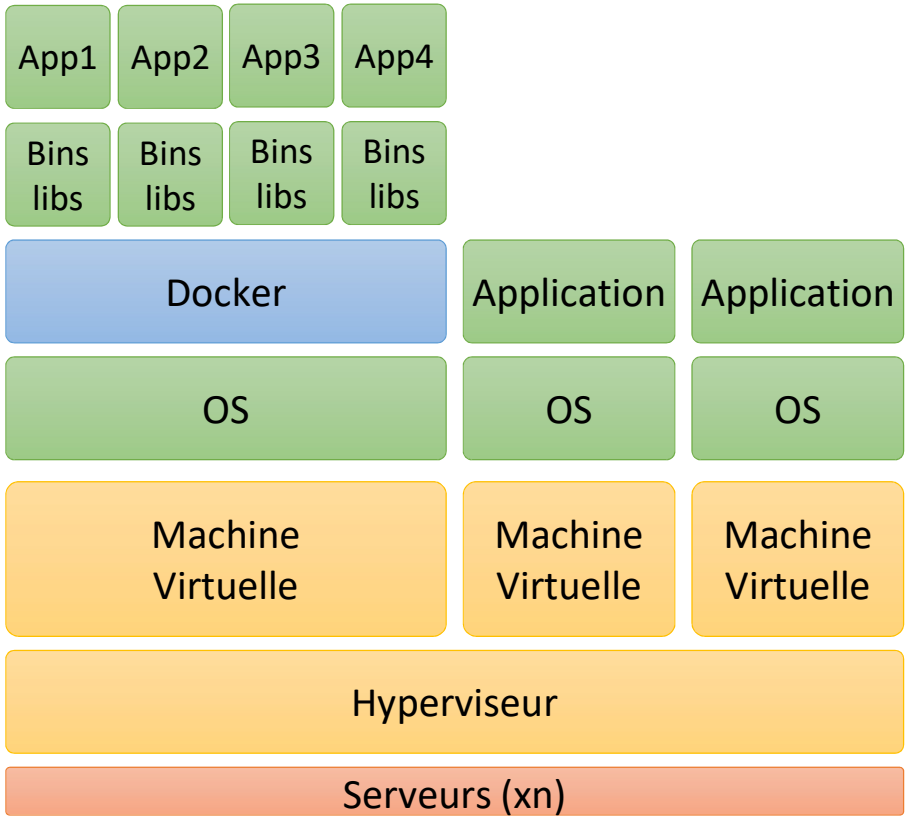

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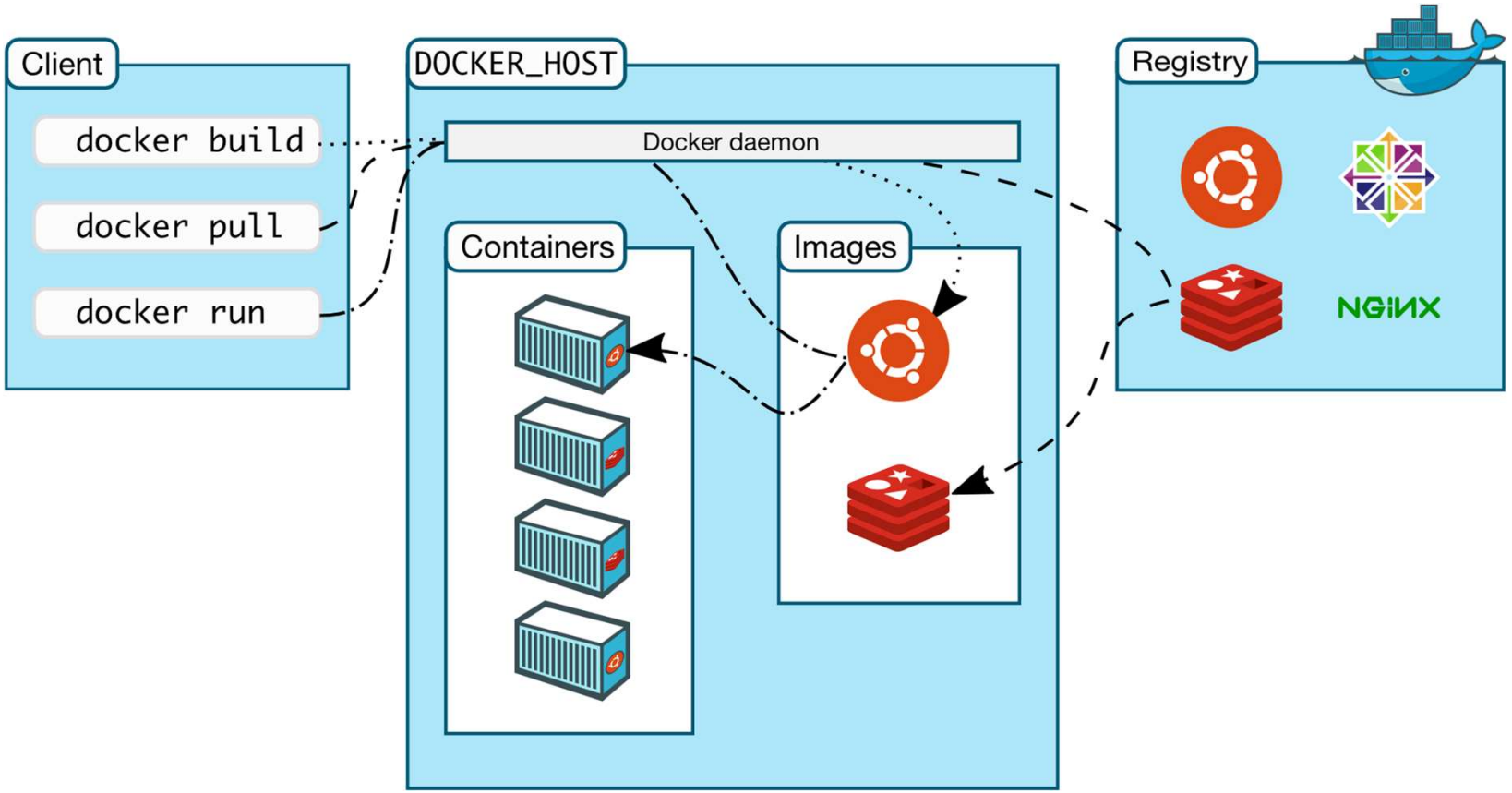

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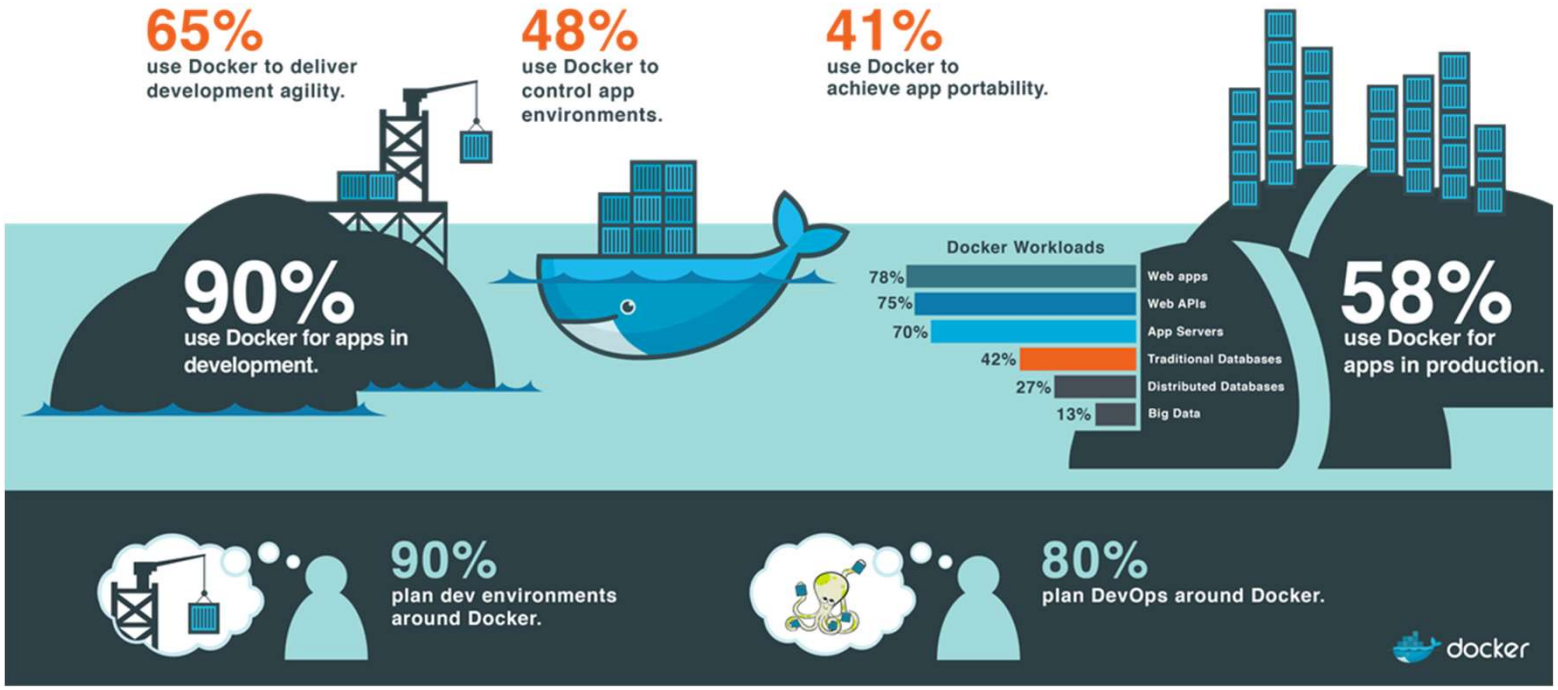

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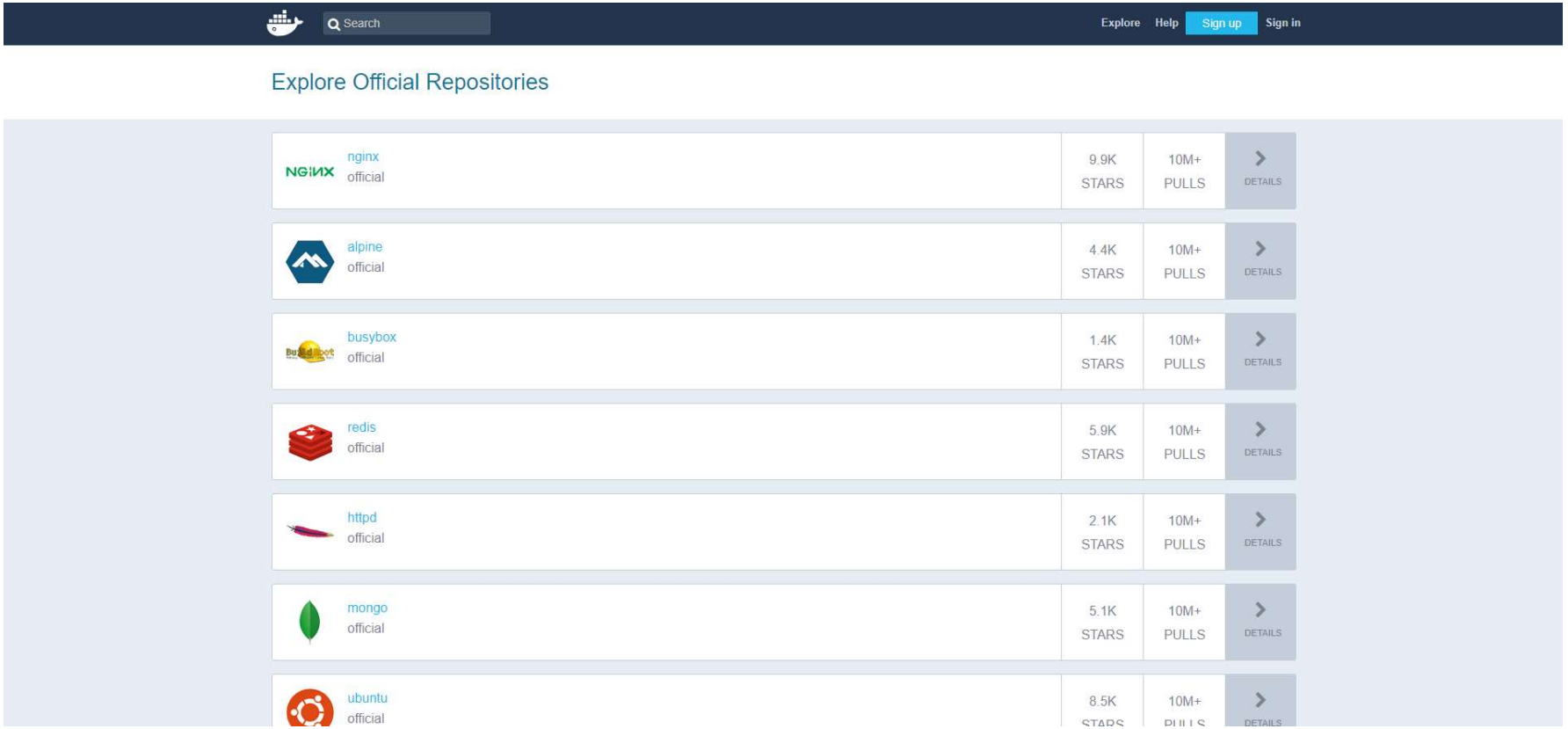
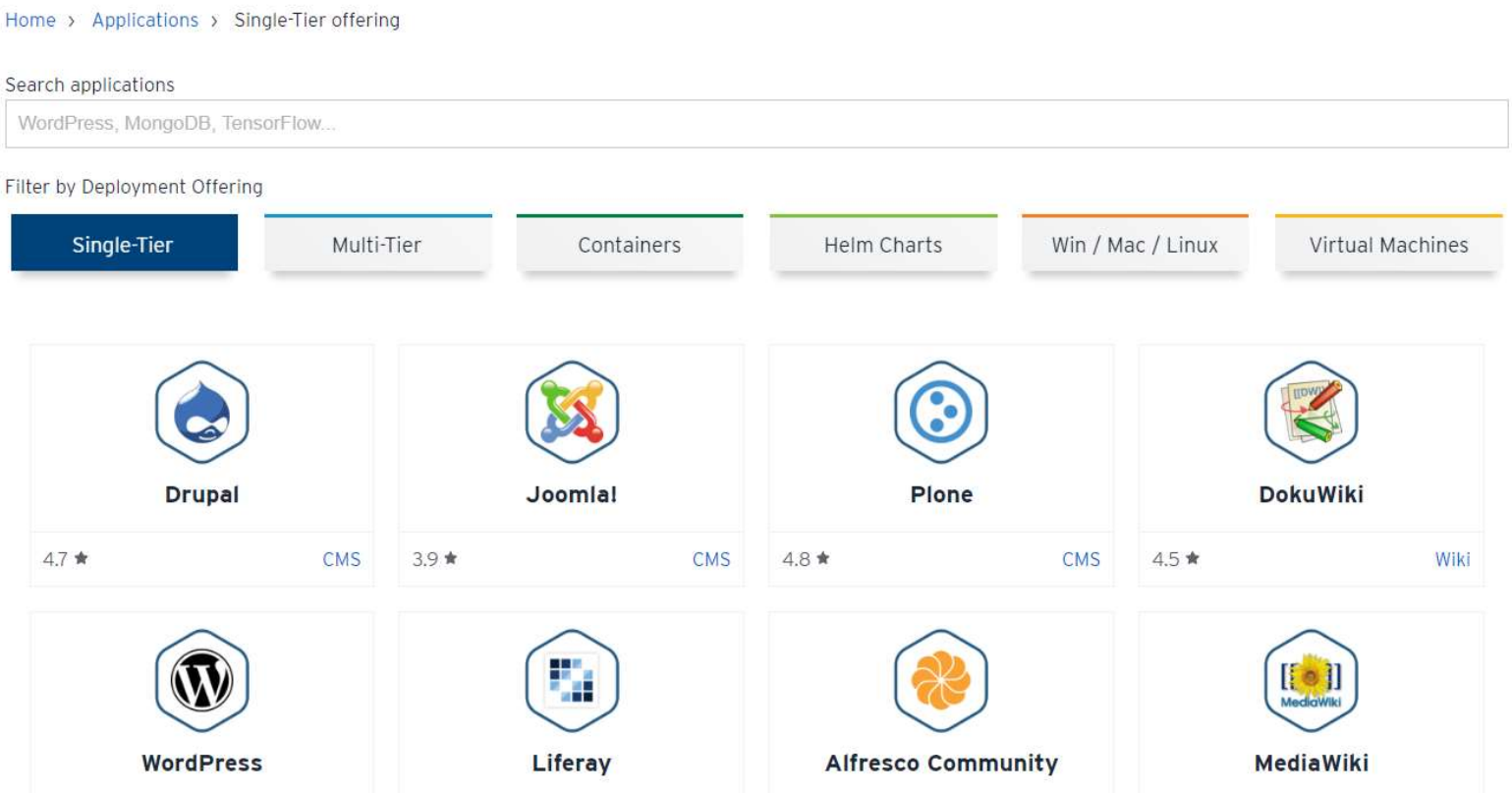
Librairie d'images Docker

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



Librairie d'images Docker

- https://bitnami.com



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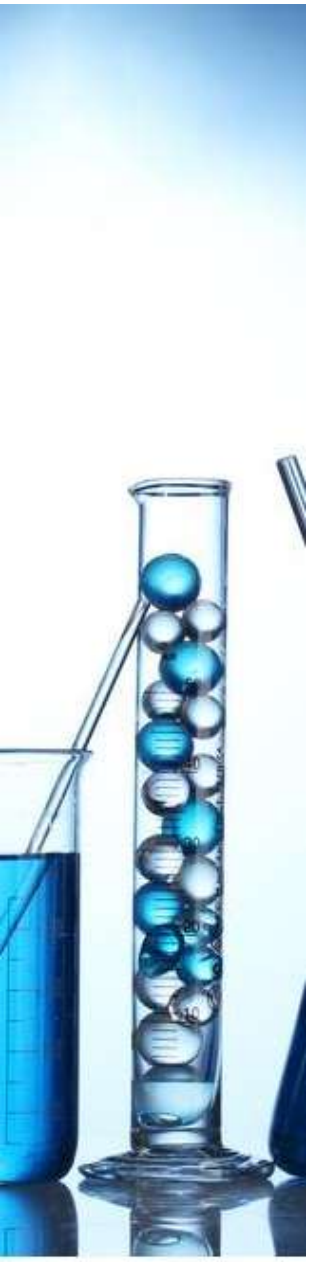

Lab 03

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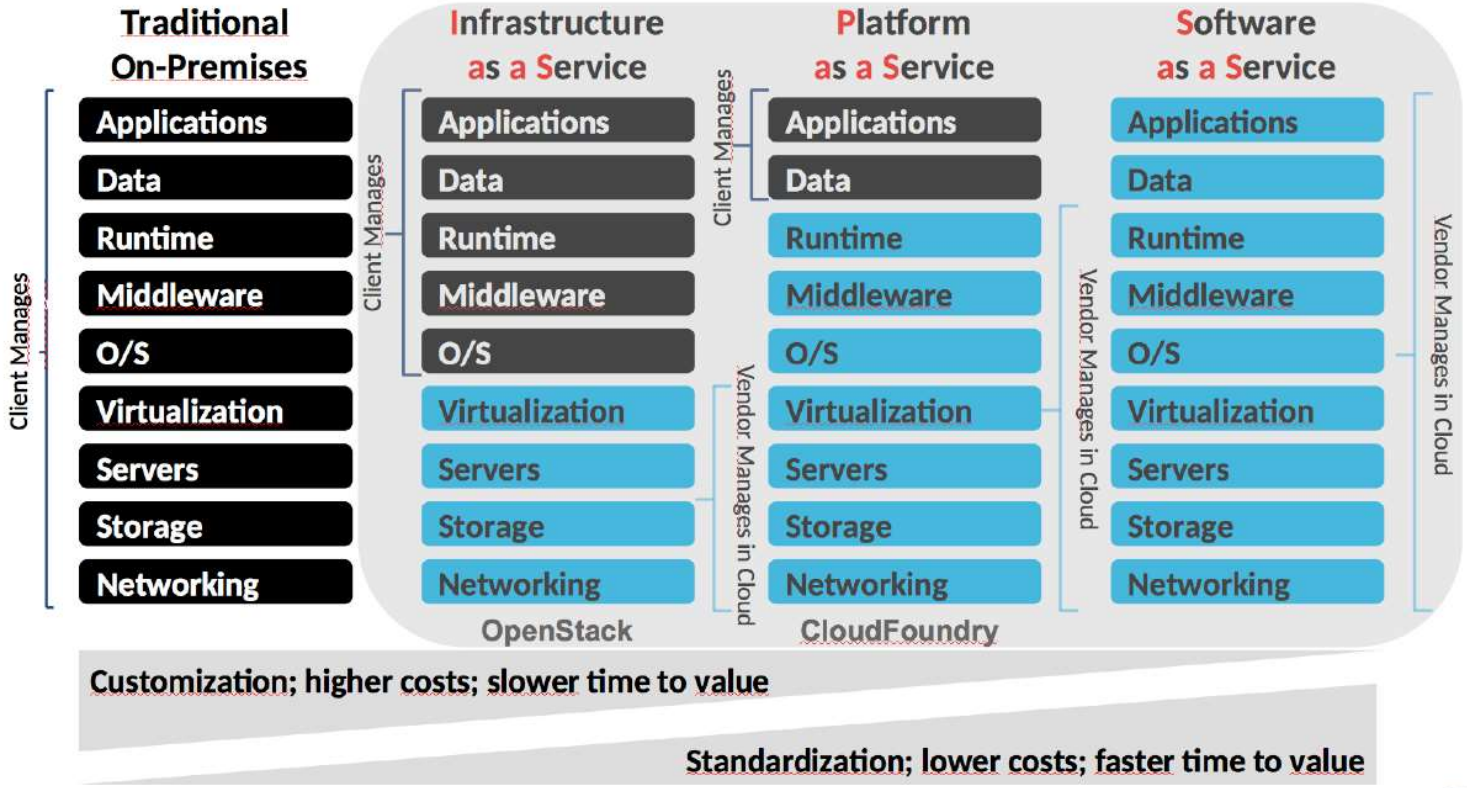
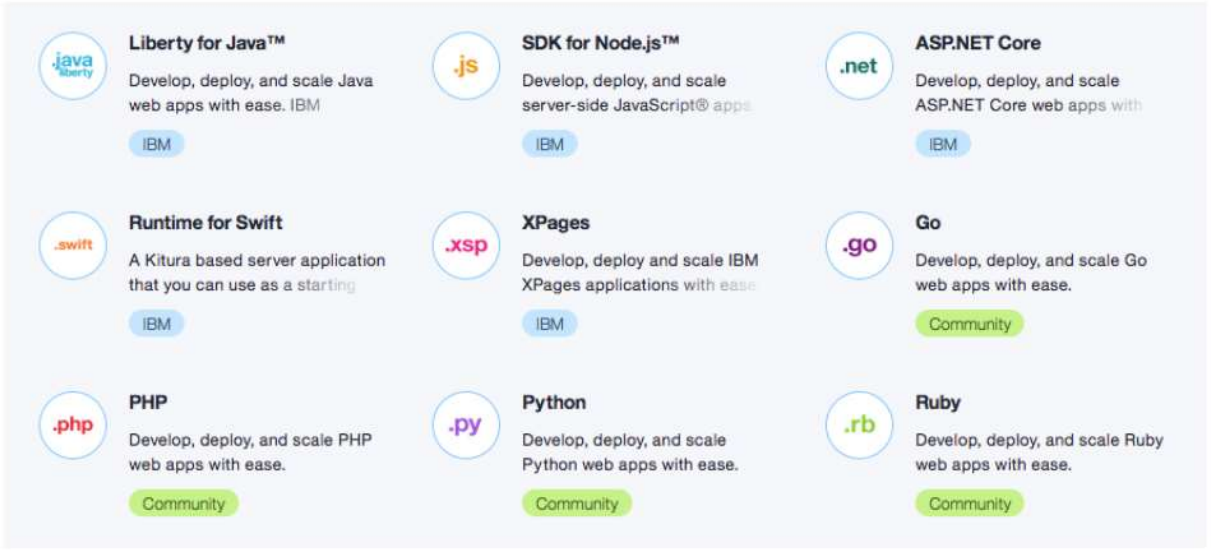
IBM Cloud



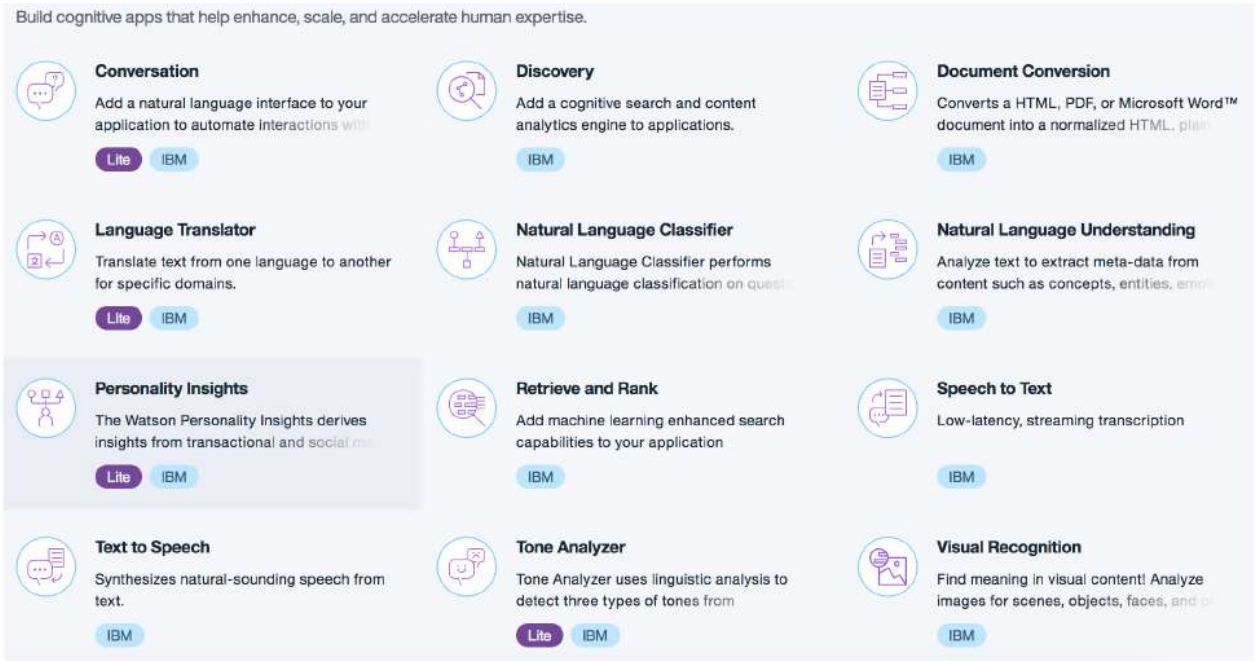
Cloud Foundry Apps

- 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

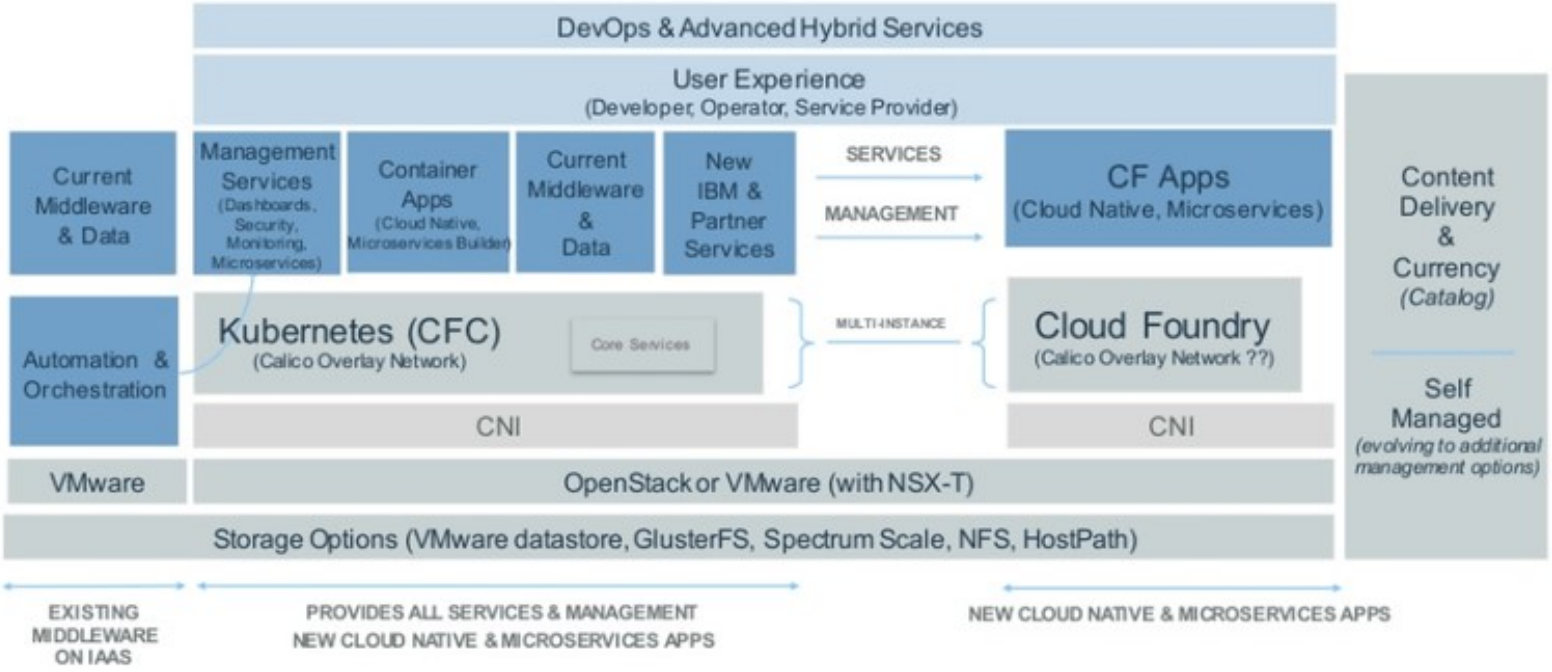


Services

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



IBM Cloud Private – End to End Architecture



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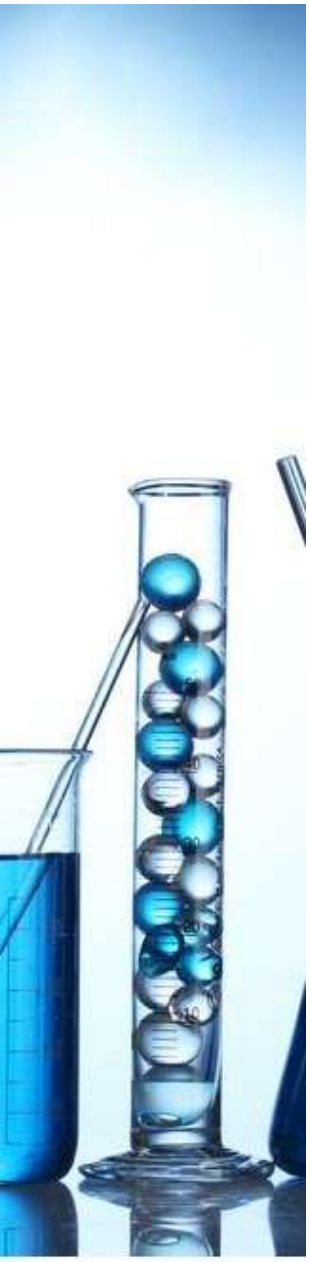

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Loi de Moore

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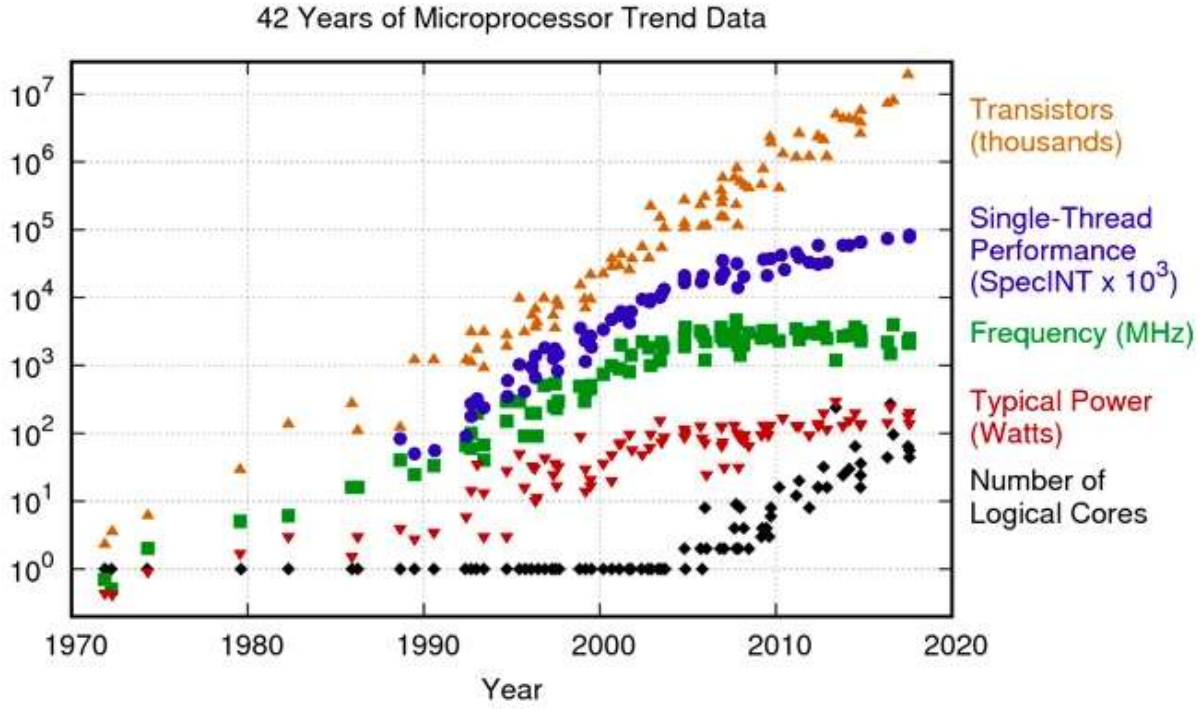
42 Years of Microprocessor Trend Data
10^7
10^6
10^5
10^4
10^3
10^2
10^1
10^0
1970
1980
1990
2000
2010
2020
Year
Transistors (thousands)
Single-Thread Performance (SpecINT x 10^3)
Frequency (MHz)
Typical Power (Watts)
Number of Logical Cores
Original data up to the year 2010 collected and plotted by 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

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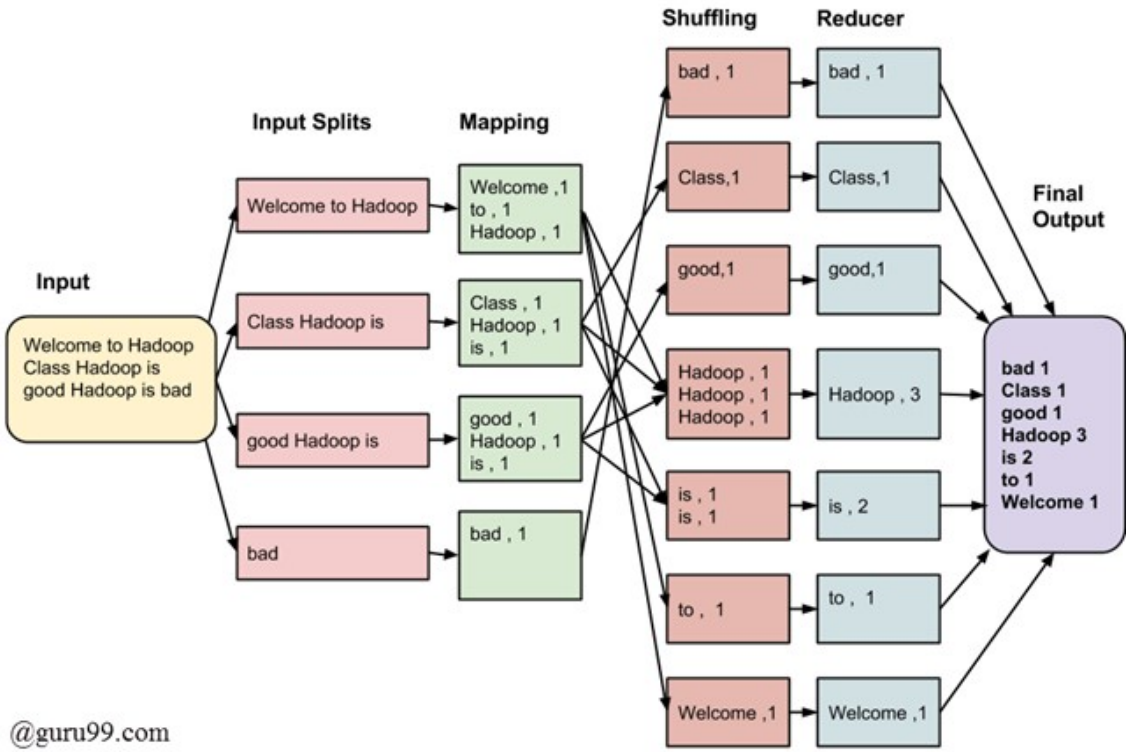
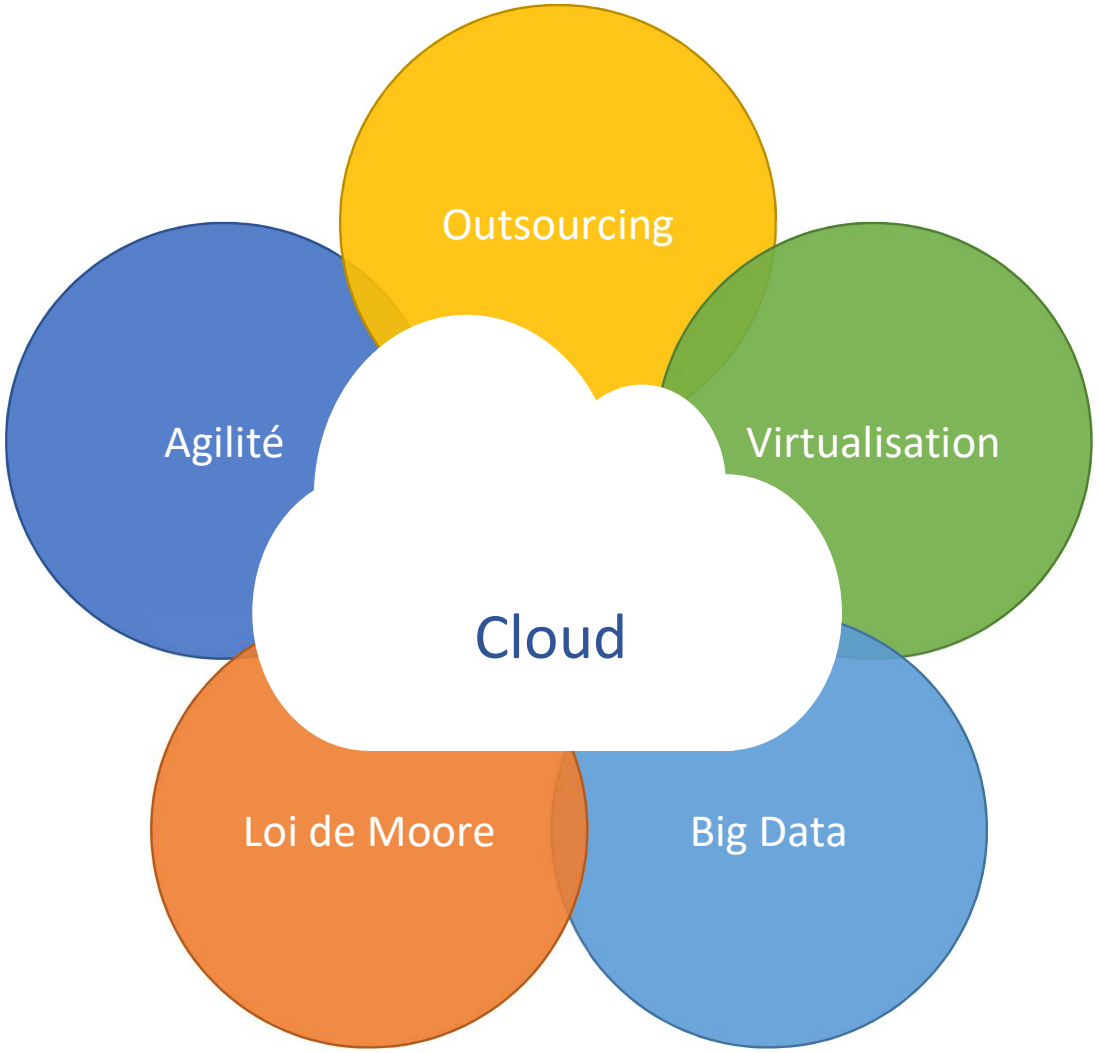
Fin de la loi de Moore + Big Data = traitement distribué (parallèle)


Input
Welcome to Hadoop
Class Hadoop is
good Hadoop is bad
Input Splits
Welcome to Hadoop
Class Hadoop is
good Hadoop is
bad
Mapping
Welcome ,1
to , 1
Hadoop , 1
Class , 1
Hadoop , 1
is , 1
good , 1
Hadoop , 1
is , 1
bad , 1
Shuffling
bad , 1
Class,1
good,1
Hadoop , 1
Hadoop , 1
Hadoop , 1
is , 1
is , 1
to , 1
Welcome ,1
Reducer
bad , 1
Class,1
good,1
Hadoop , 3
is , 2
to , 1
Welcome ,1
Final
Output
bad 1
Class 1
good 1
Hadoop 3
is 2
to 1
Welcome 1
@guru99.com



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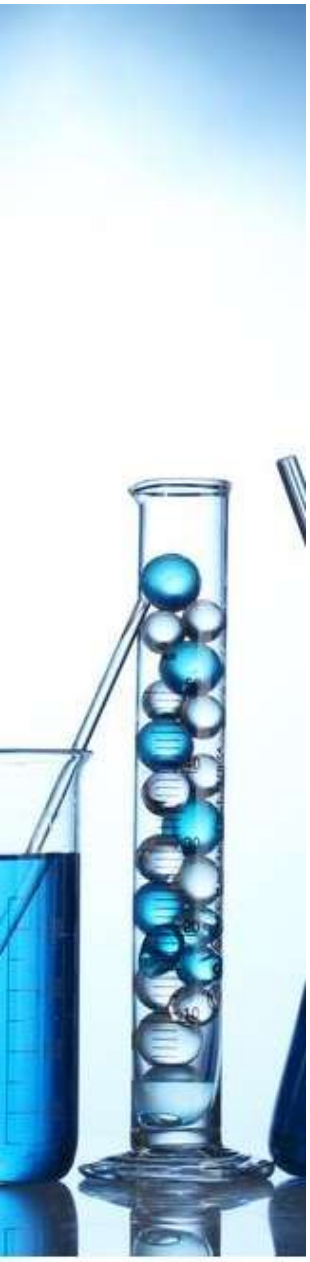

Lab 04

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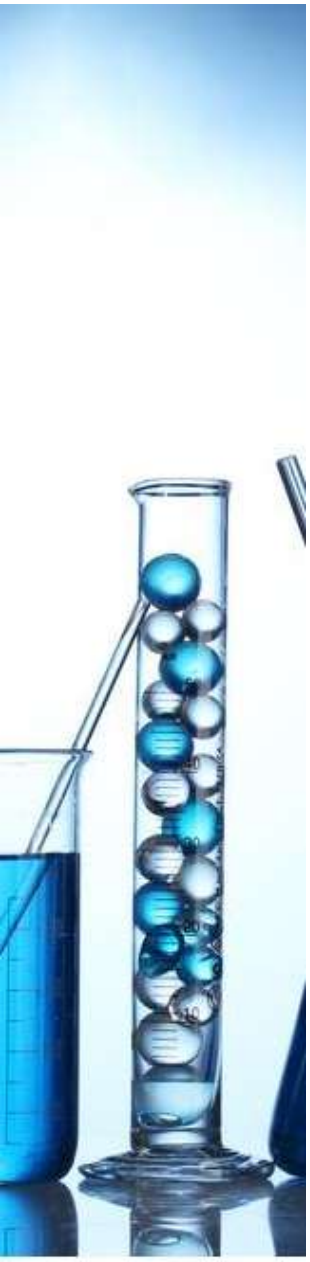

Lab 05 : Cloud BI

TalanSolutions


TalanSolutions
21, rue Dumont d'Urville – 75016 Paris