



Disaster Recovery: from on-premises to cloud

CERN openlab Technical Workshop

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Achievements in 2019

Migration to Kubernetes

Automatize Infrastructure deployment

Dedicated network link between CERN DC and Oracle Cloud

Migration to Kubernetes

WebLogic on Kubernetes

Different versions

12.1.3

12.2.1

~ 40 deployments

Across DEV/TEST/PREPROD/PROD

Other ~ 40 waiting to be moved

Automatize Infrastructure deployment

Openlab Summer Student Project

Automatize and simplify the deployment of
Infrastructure

- Terraform modules

 - ElasticSearch

 - InfluxDB

 - Grafana

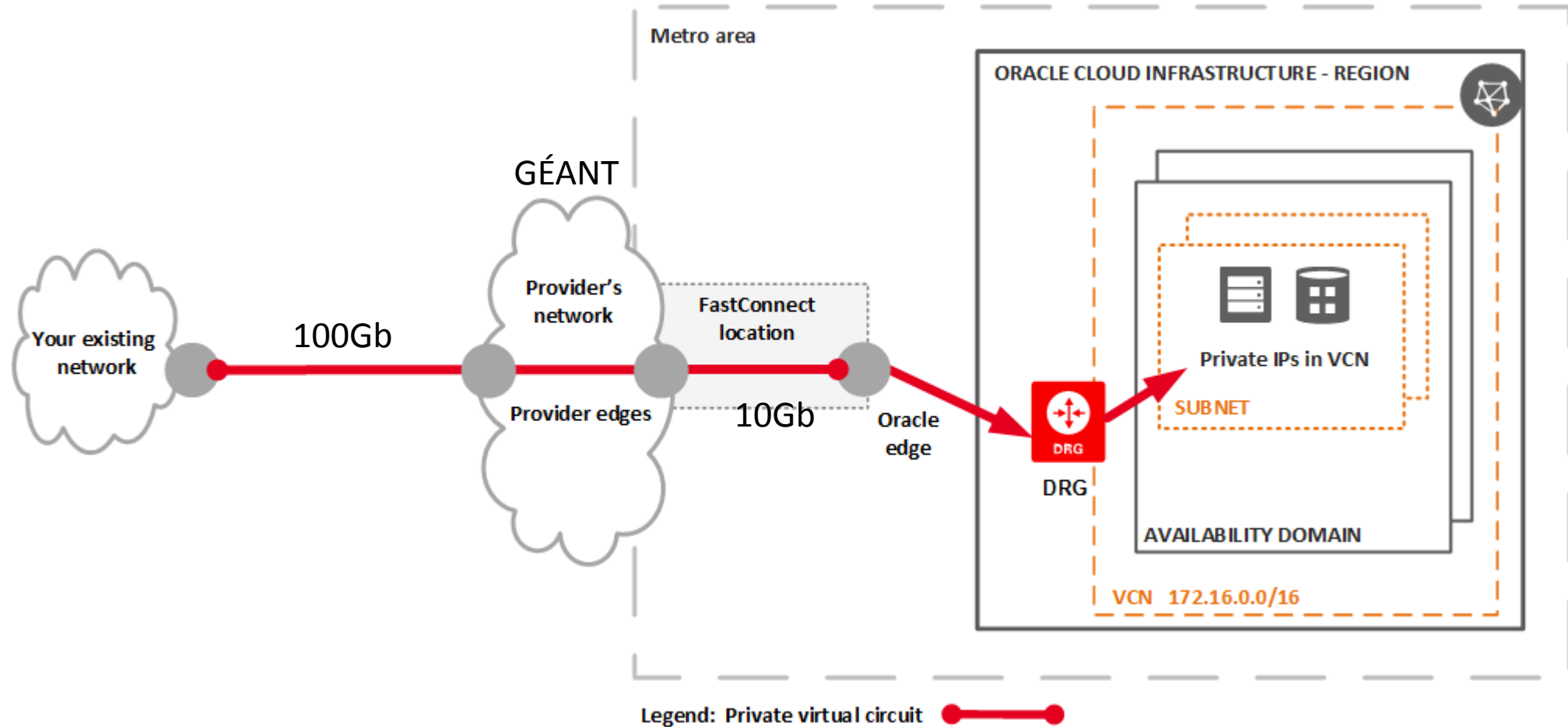
 - Kubernetes Clusters

- Cloud agnostic deployment

Credit: Priyanshu Khandelwal

Dedicated network link

Oracle Cloud and CERN connected by GÉANT



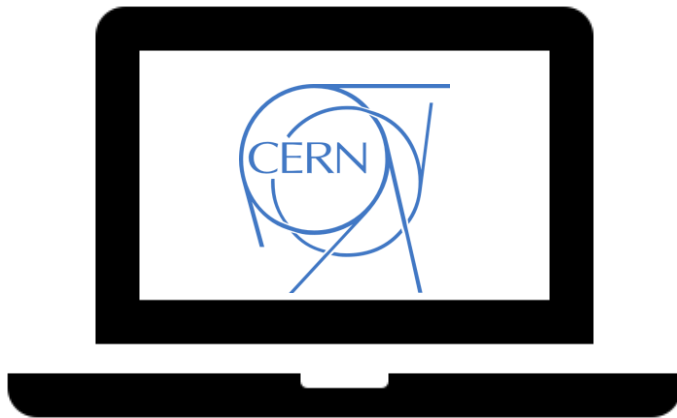
GÉANT

Europe's leading collaboration on e-infrastructure and services for research and education.



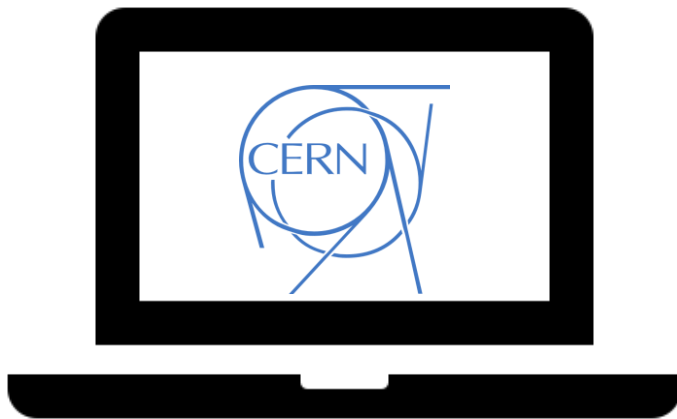
Bandwidth tests: scenario 1

Bare Metal

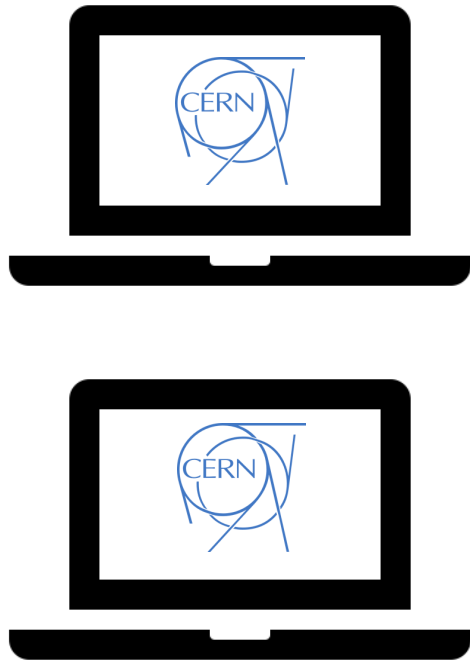


Bandwidth tests: scenario 2

Virtual Machine



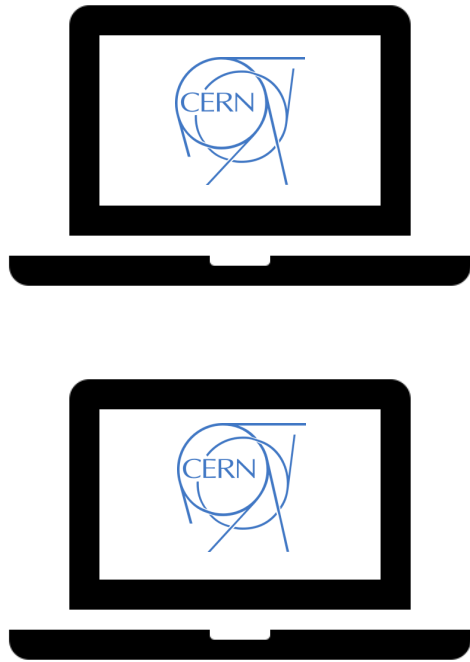
Bandwidth tests: scenario 3



Bare Metal



Bandwidth tests: scenario 4



Virtual Machine



Bandwidth tests: results

Bare Metal bandwidth

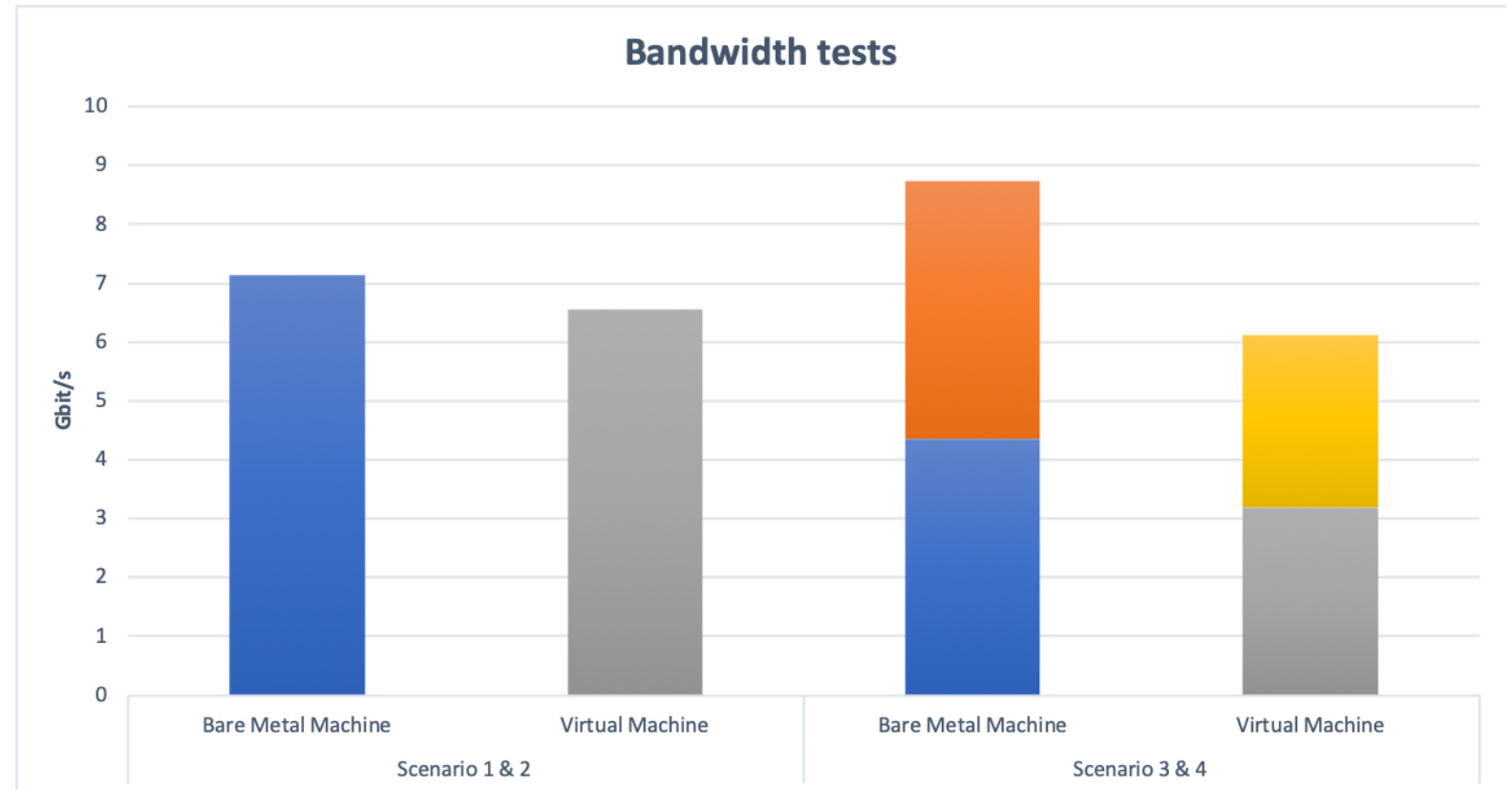
Stable

Variable VMs bandwidth

Variable

Noisy neighbors

Parallel streams work better



Achievements in 2019

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Disaster Recovery Plan: Why

Wigner decomissioning

- Historical backup datacenter for CERN
- Find an alternative

Kubernetes opens new doors

- Standardization of deployment
- Portability
 - Much easier migrate than VMs

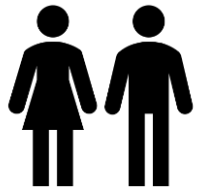
Accounting

- Help us to quantify our service
- Which level of SLA we can guarantee.

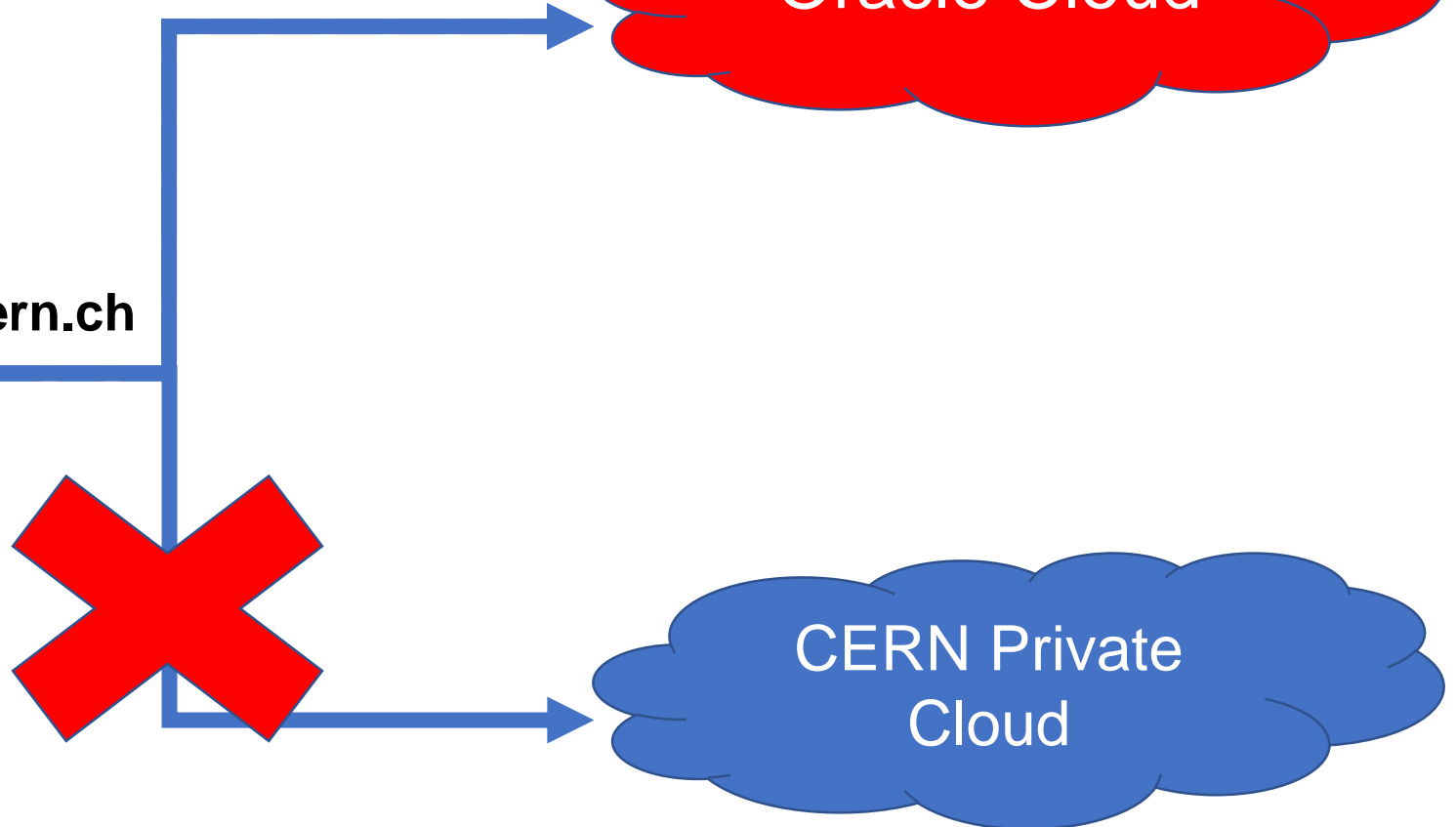
Disaster Recovery Plan: How

Active-Passive

No dependencies between deployment on premises and on cloud



<https://edh.cern.ch>



What's next

Identify target application

phonebook

landb

Duplicate production database in the Oracle Cloud

Deploy needed infrastructure in the cloud

Logging

Monitoring

Deployment infrastructure

Kubernetes Clusters

Credits

<https://www.startovercoder.com/044-why-programming-financial-independence-go-hand-in-hand/>



THANK YOU



QUESTIONS?

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