



# Carrier Neutral Data Centers

*Where Enterprises meet Networks*

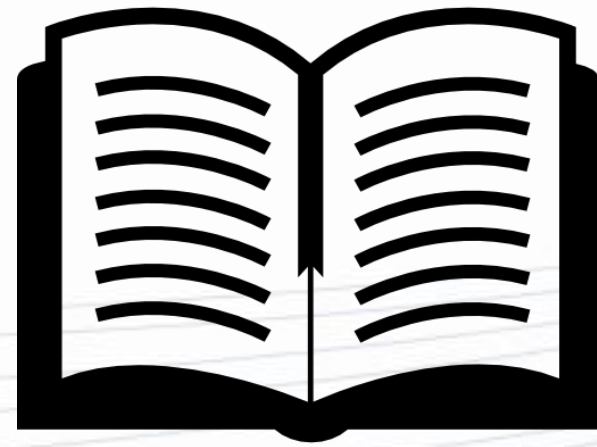


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October, 24th 2017





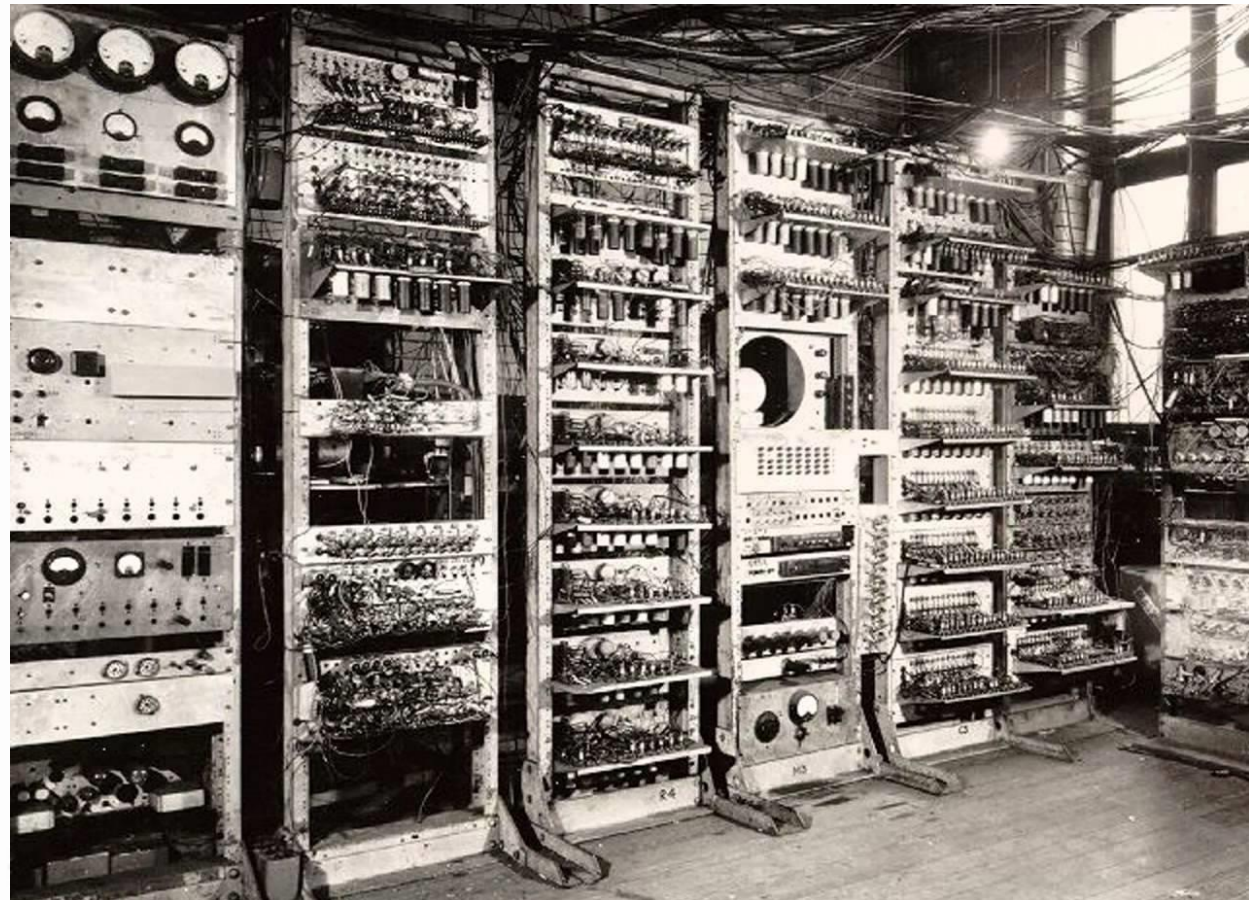
**Once upon a time...**





# 1946 - Pennsylvania, USA

## United States Army's Ballistic Research Laboratory

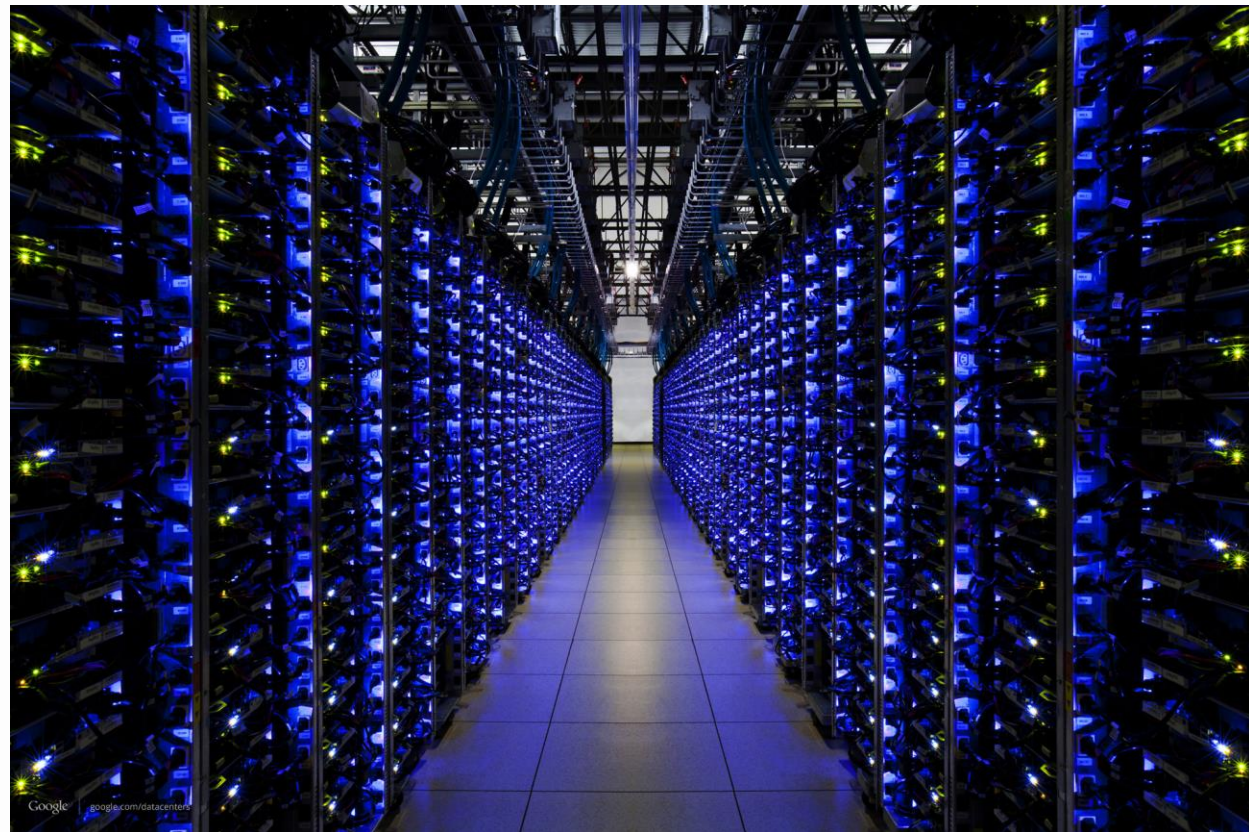


- **ENIAC**
- **1<sup>st</sup> computer general purpose**
- **180 m<sup>2</sup>**
- **200 kW**
- **30 tons**
- **18000 vacuum tubes**
- **50°C temperature**



# 2017 - Eemshaven, NL

## Google



- 4<sup>th</sup> Google Data Center in EU
- Enterprise Cloud Data Center
- 640M \$ Capex
- 10.000 m<sup>2</sup>
- 30 MW solar power



# Mega trends

What is driving demand for Data Center ?

- Internet of Things
- E-Mobility
- Big Data
- AI
- Analytics
- ....



# **Modern Data Center**

## **Main purposes**

- **Host Technology**
- **Maintain Operational Environment**
- **Energy Efficient**
- **Future-proof**



# **Modern Data Center**

## **Equipments hosted**

- **Server (computing)**
- **Storage (archive)**
- **Switch (connectivity)**



# **Modern Data Center Operational Environment**

- **Continuous and Regular Power**
- **Cooling**
- **Monitoring**
- **Physical Security**
- **Maintenance**
- **Capacity Planning**





# Modern Data Center

## How to reach Energy Efficiency



- **Rational MEP design** (room layout, cooling design, distances,..)
- **Not over-provisioning**
- **High Power Density**
- **Power Usage Metering**
- **DC Systems Monitoring**



# Modern Data Center

Design requirements to build a Future-Proofed DC

- **Flexibility**
- **Scalability**
- **Extension Plan**



# Who is the DC final user?

For who the DC has been built

- For the builder => Enterprise DC
- For third parties => Commercial DC



# Enterprise Vs. Commercial

## Diversity in design and construction

- **Enterprise DC - SINGLE TENANT**

Engineering Team (usually) knows: Tier rating desired, equipment to be hosted, installation timeframes, power load, etc...

- **Commercial DC - MULTI TENANTS**

Engineering Team never knows the items above...

**FLEXIBILITY RULES !**



# Commercial Data Centers

Two main categories in the market

- **Telco Data Center**

DC operated by Carriers for its Customers

- **Carrier Neutral Data Center**

DC operated by non-Carriers



# Telco Data Center

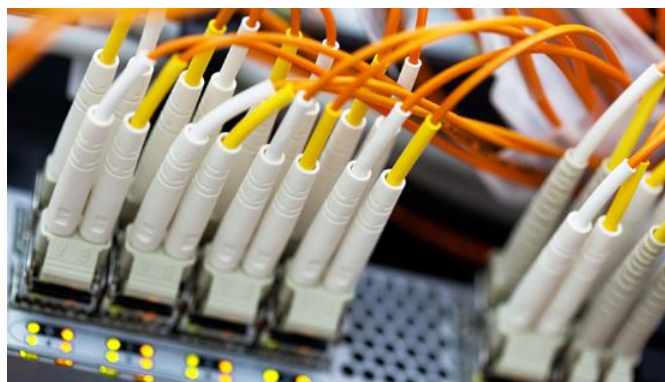
A comfortable "all in one" solution

- **Connectivity and Voice Services**  
based on Telco owned Network
- **Data Center Services**  
based on Telco Facilities and Systems
- **One service choice for all**  
Service Level Agreement, Performance, Network, Cost, ...



# Carrier Neutral Data Center

## Completely independent of networks



- **Multi Carrier Connectivity**

A broad range of providers are allowed to bring connectivity to enhance network diversity and competitive solutions

- **Multi Cloud Environment**

Public and Private Cloud solutions available at the same time

- **Ecosystem of Providers**

When the access to the environment attracts many service providers to create a “marketplace” for IT & TLC services



# Telco Vs. Carrier Neutral

## More opportunities in a Carrier Neutral DC

- **Performance**

More networks connected more solutions available

- **Costs**

In a competitive market costs are lower

- **Service Portability**

No need to move the colocation when network provider changes



- **Ecosystem**

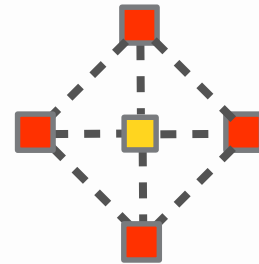
Marketplace for Enterprise





# The growth of the ECOSYSTEM





-  Carrier
-  IX

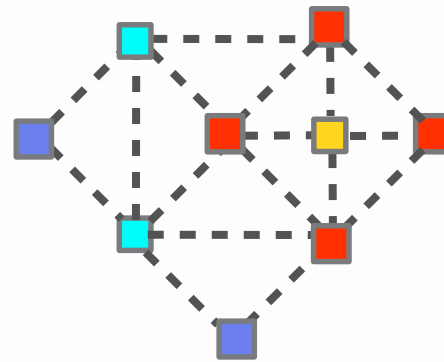


Multiple CARRIERS availability in a Carrier Neutral DC is a preliminary condition for an INTERNET EXCHANGE to connect to.



# The growth of the ECOSYSTEM

-  Carrier
-  IX
-  Tier1
-  Content Provider

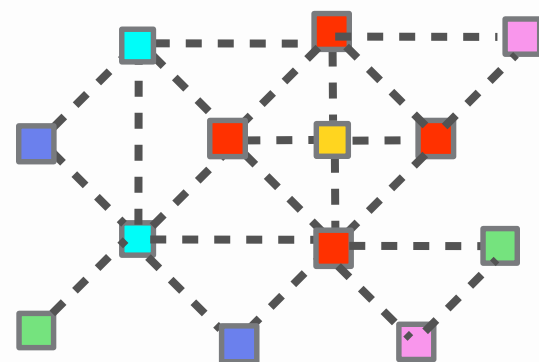


**CARRIERS and EXCHANGE attract  
TIER1 and then CONTENT PROVIDERS**



# The growth of the ECOSYSTEM

- Carrier
- IX
- Tier1
- Content Provider
- Cloud Provider
- System Integrator



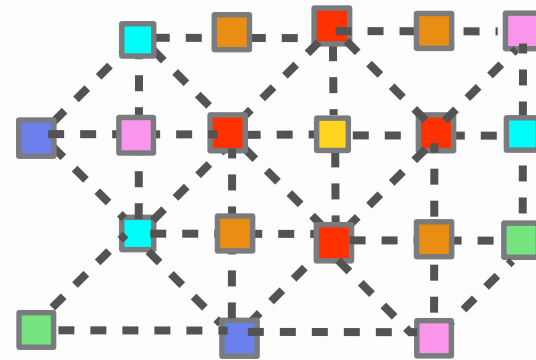
Ecosystem begins to emerge thanks to **CLOUD PROVIDERS** and **SYSTEM INTEGRATORS**

◆-----◆ Cross Connect



# The growth of the ECOSYSTEM

- Carrier
- IX
- Tier1
- Content Provider
- Cloud Provider
- System Integrator
- Digital Media



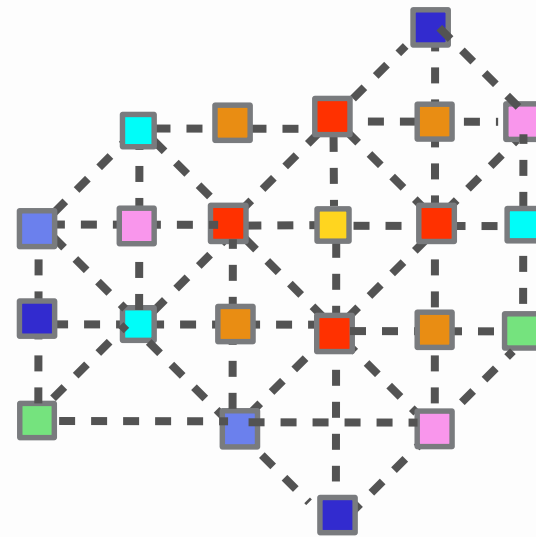
In such a dense network environment **DIGITAL MEDIA** finds an ideal place to connect with **final customers**

◆-----◆ Cross Connect



# The growth of the ECOSYSTEM

- Carrier
- IX
- Tier1
- Content Provider
- Cloud Provider
- System Integrator
- Digital Media
- Corporate
- Cross Connect



The ENTERPRISE find a multi cloud platform to reduce costs and enhance their customer experience



# **The ECOSYSTEM wins**

## **Full independency of networks**

- **Multi Carrier Connectivity**

A broad range of providers are allowed to bring connectivity to enhance network diversity and competitive solutions

- **Multi Cloud Environment**

Public and Private Cloud solutions available at the same time

- **Ecosystem of Players**

Networks, Exchange, Tier-1, Cloud Providers, Content Providers, System Integrators, Enterprises.



**Thank you**