



**OCP**  
SUMMIT

October 1-2  
**2018**  
Amsterdam

**OPEN. FOR BUSINESS**



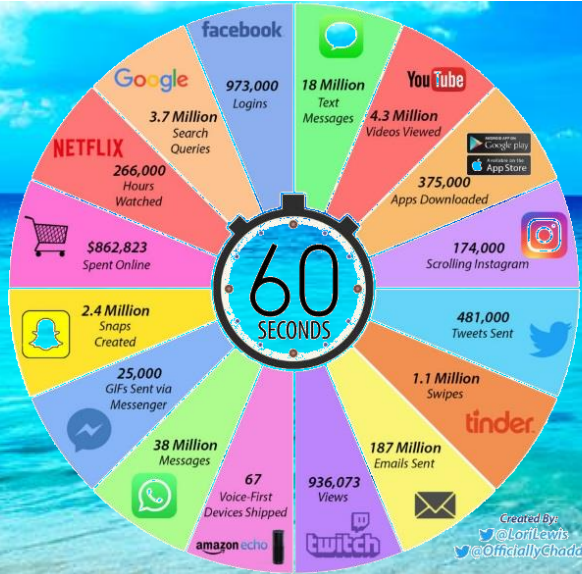
# 4 PRINCIPLES TO REALIZE THE BENEFITS OF OCP FOR THE DATA CENTRE FACILITY

Stijn de Kruijf

Data Centre Facility Developer @Royal HaskoningDHV

October 2, 2018

# 2018 *This Is What Happens In An Internet Minute*



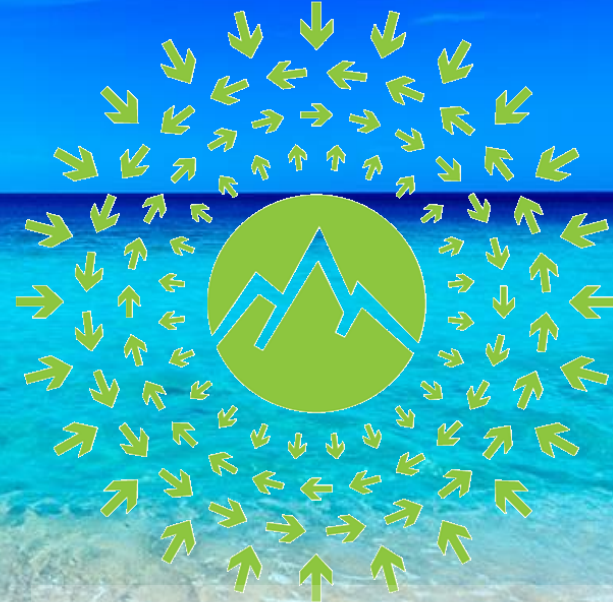
190M mails

40M WhatsApp's

250k hours Netflix watched

1M people watching other gamers via Twitch

# OCP



OCP enables a lot of benefits for the data centre

The deployment of OCP hardware is increasing fast !

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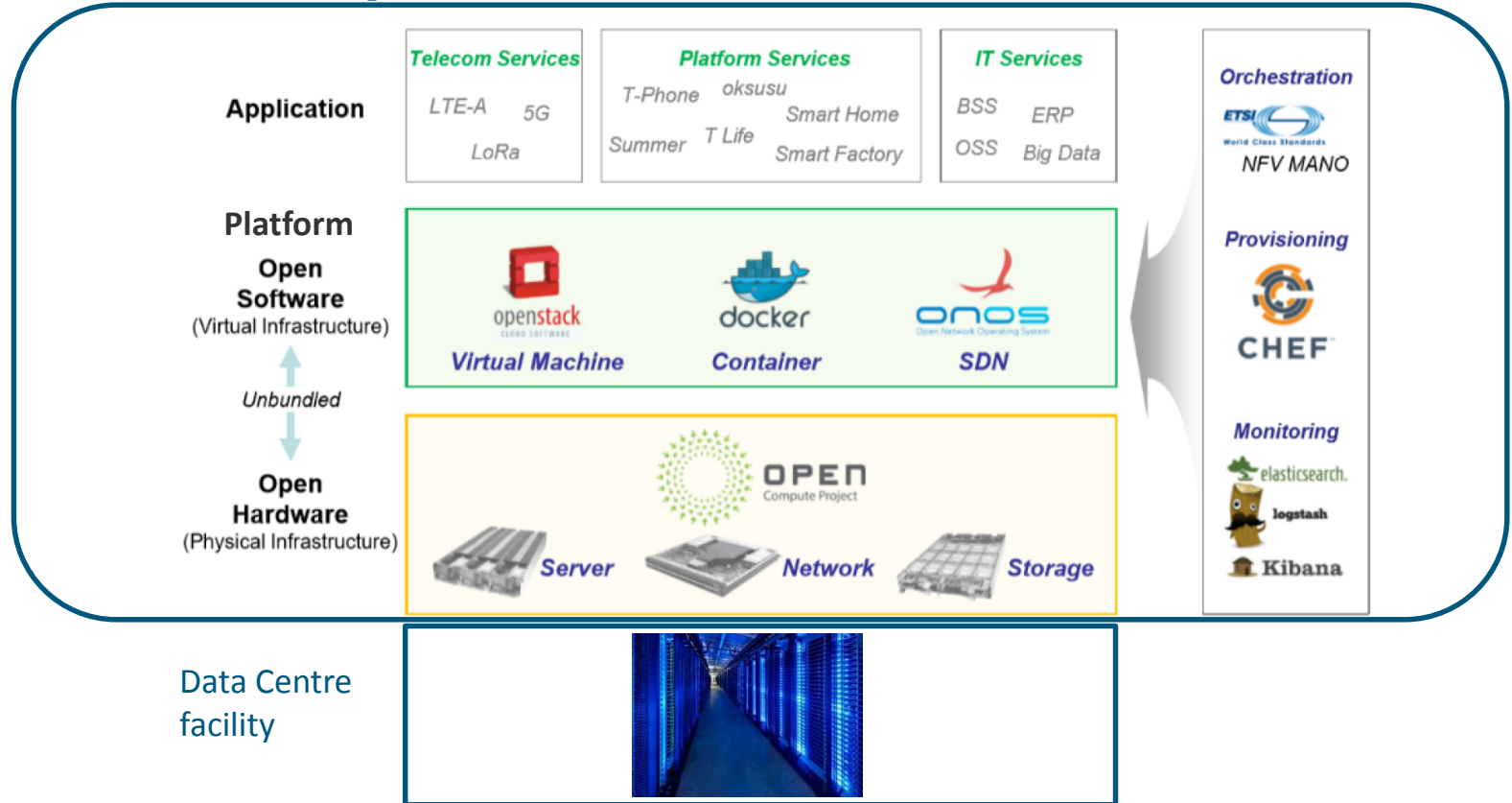
Where are the savings for the data centre facility?

# 4 PRINCIPLES TO REALIZE THE BENEFITS OF OCP FOR THE DATA CENTRE FACILITY

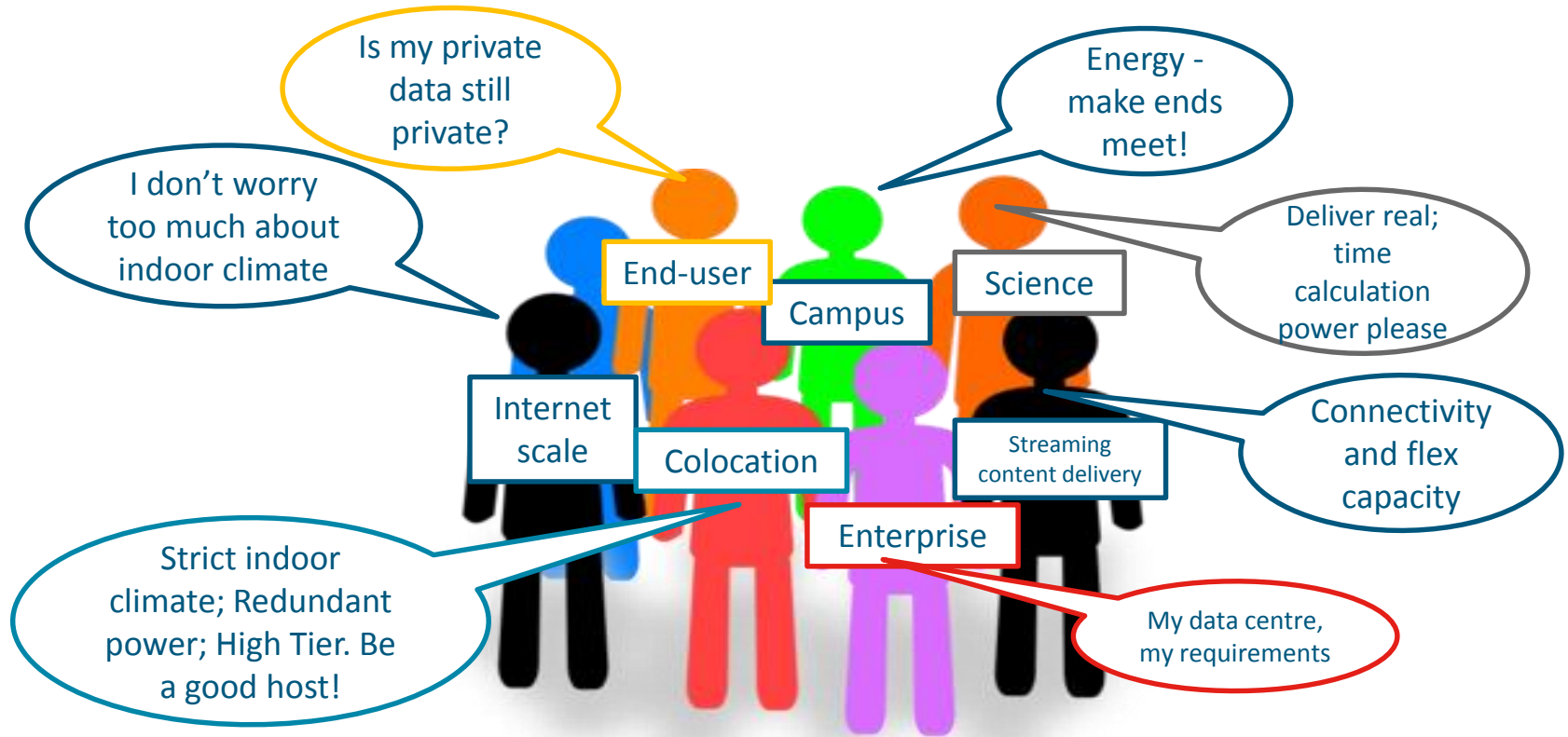
- Introduction
- Data centre facility costs
- Guidelines
- UPS principle
- OCP integrated data centre design
- Wrap up the 4 principles

# Introduction - Open Data Centre

## Open Data Centre

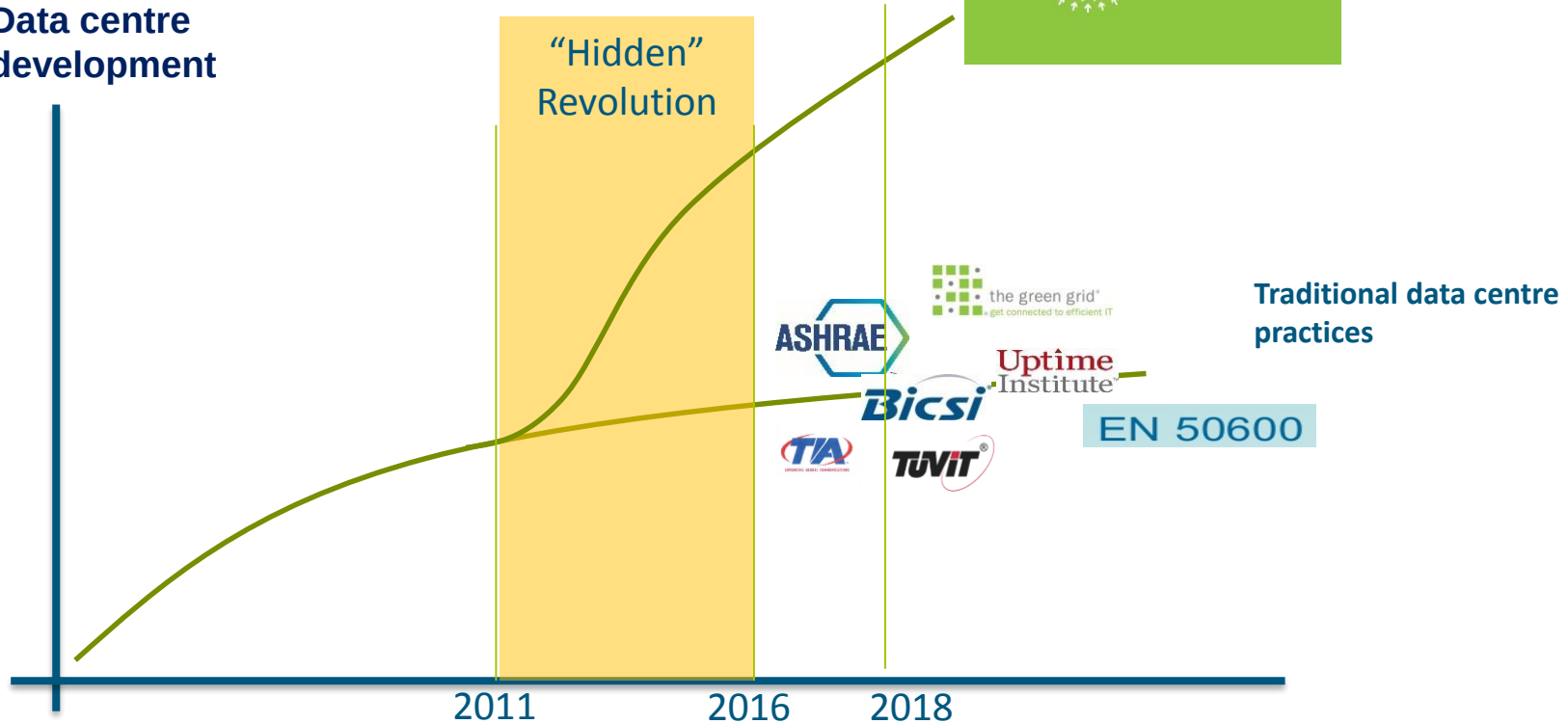


# Introduction - DC Development Fragmentation



# Introduction - Revolution

Data centre  
development



# Data Centre Facility Costs

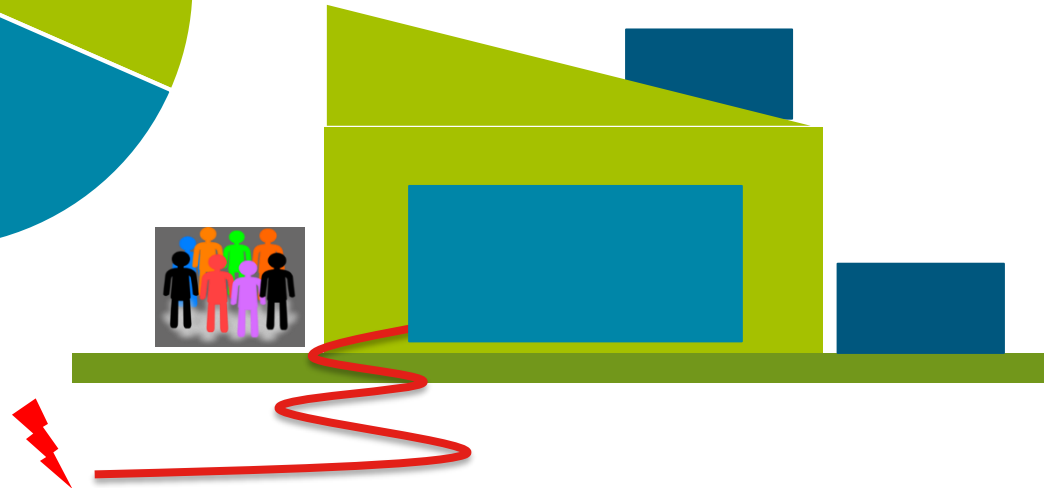
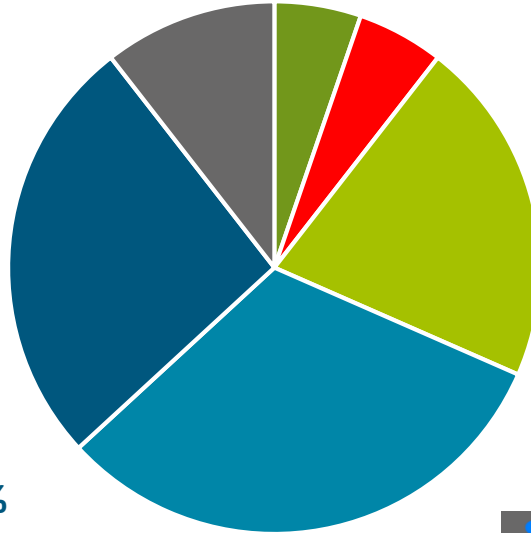


3000 \$/kW - 18000 \$/kW IT Power

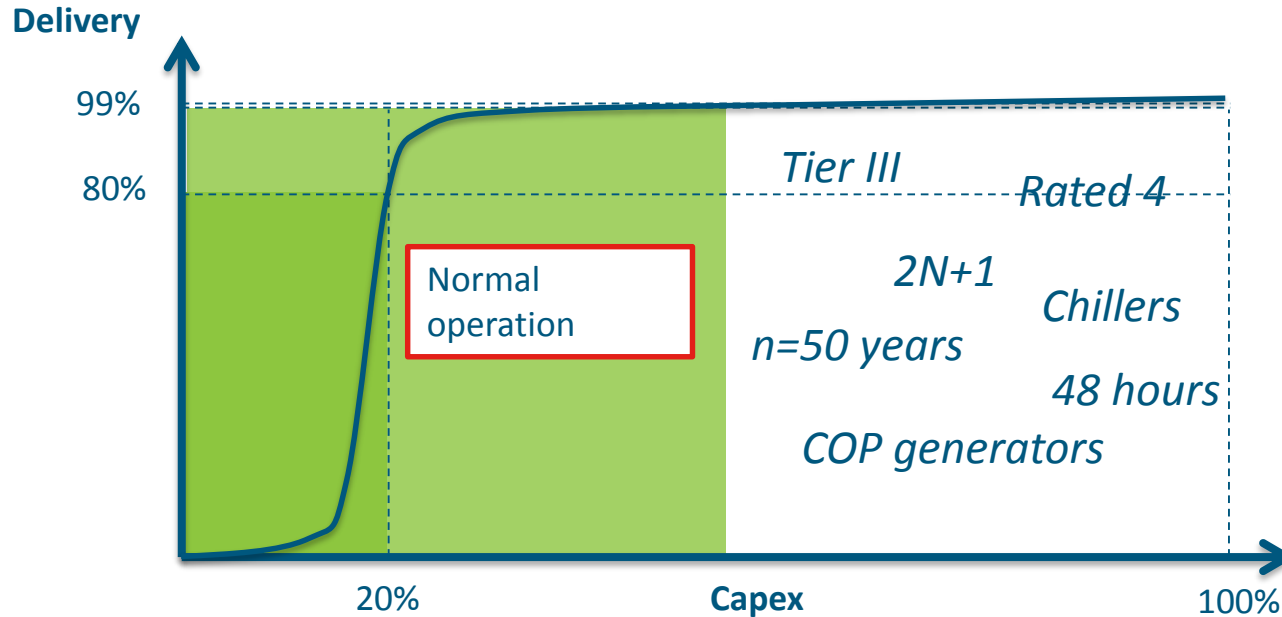
Quite a difference for a 40.000 kW data centre!!

# Data centre facility costs - Capex (excluding IT racks)

- Land 5%
- Grid Connection 5%
- Shell 20%
- Fit-out 30%
- Large components 25%
- Development 10%



# Data centre facility costs - Analysing



50% of the data centre facility costs are for < 1% of the operation

# Data centre facility costs



Still want to go 240 km/h with two flat tires?

## Mismatch

DC Facility must deliver the maximum power and cooling under each and every circumstance



Get rid of the 50%

# Guidelines - How should it be done? Analysing



XXX.X...X...XXX.XX  
...XXX.XX.X.XXXXX...XX...  
XXXXX.XXXXXXXX.XX...X.X.  
XX.X...XXXXXX.X...XXX.  
...XX.X...!!!!

Uptime  
Institute®

EN 50600



# Guidelines - How should it be done? Analysing



Uptime  
Institute™



Bicsi

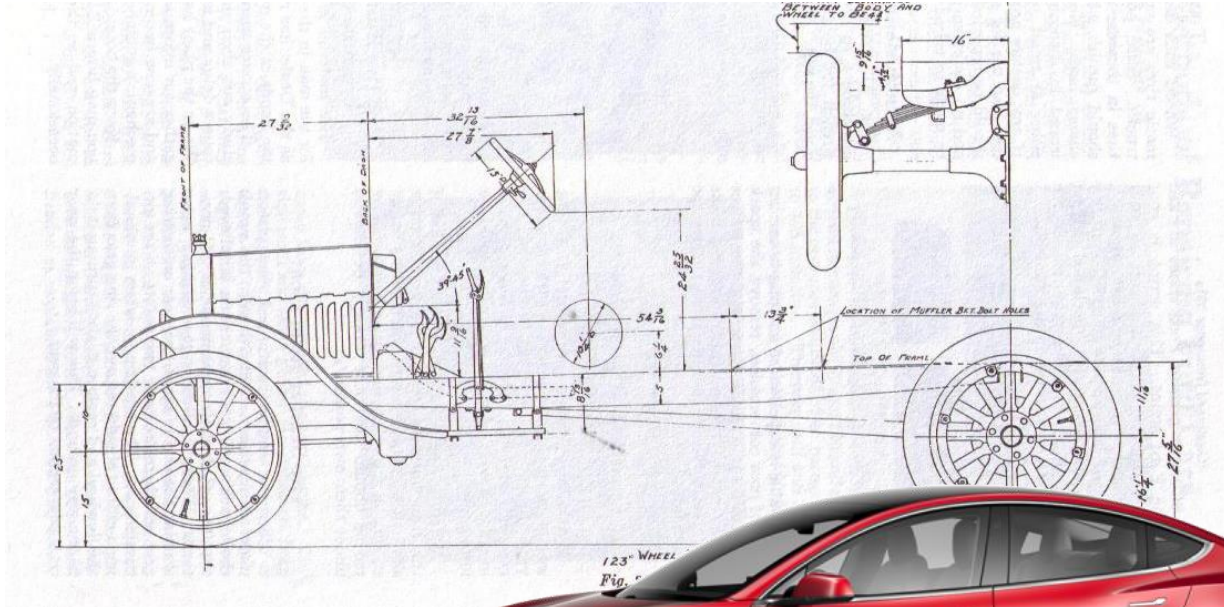
TUVIT



EN 50600



# Guidelines - How should it be done?



# Mismatch



Blank sheet guidelines

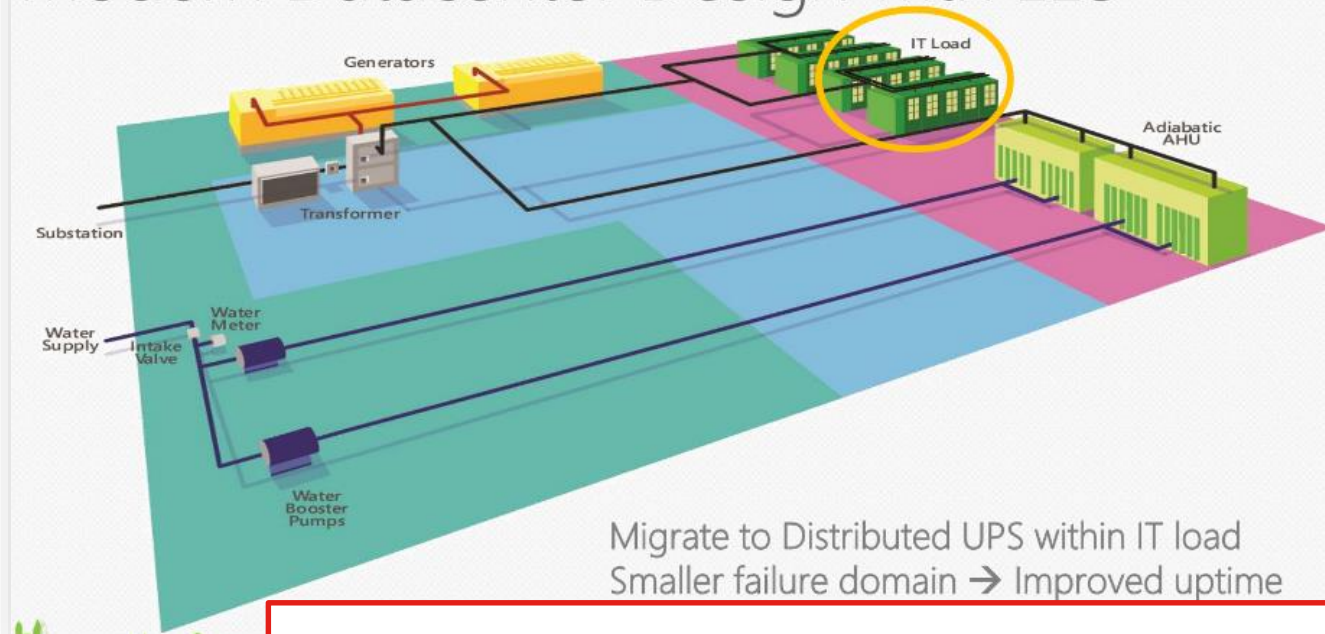
# UPS principle - Can we define a “better question”?

- Uncontrolled shutdown of IT equipment causes 20% to fail automatic restarting
- The maximum power of a rack and a row a racks can be controlled already in OCP. Why not use this possibility?
- If you ramp down the your data storage access. Your data is not lost!
- Communication (5% of DC) is most critical. Storage and Compute can be ramped up and down.
- Geo-redundancy can take care of local capacity limitations



# UPS principle – UPS with IT load

## Modern Datacenter Design with LES



UPS closer to IT, smaller failure domain + provides time for IT to decide

# UPS principle - Power

- High reliable utility power
- MV and HV incoming power 99.99%

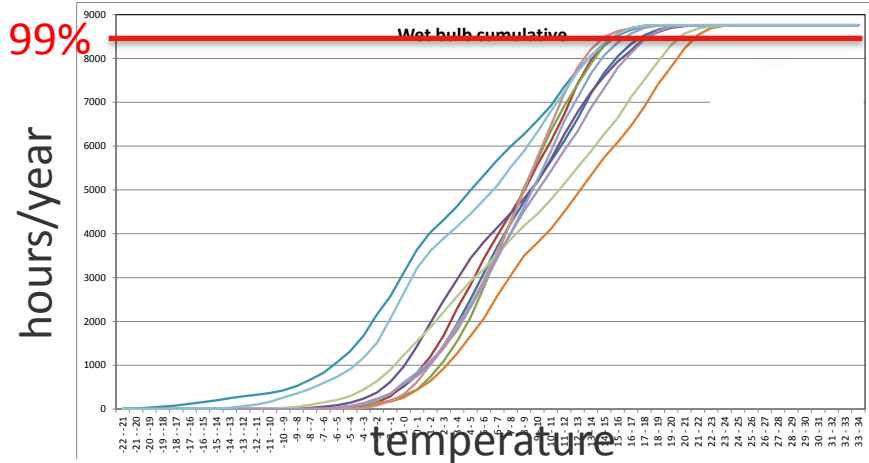
Do you really need to run the data centre at maximum when utility power fails?  
Generators +2



The data centre IT can respond to utility power failure.  
2 generators total might be enough!

# UPS principle - Cooling

- Cooling depending outside climate conditions



32 degrees Celsius  
27 degrees Celsius

Do you really need to run the data centre  
at maximum at these moments?

Is 32 degrees Celsius a magic number?  
What's happening beyond?

The data centre IT load can respond to temperature

## UPS principle

Data centre IT is able to respond to conditions outside the 99%.

UPS provides time to think!

*Also some cold storage  
+ pumps/fans required on UPS as well.*



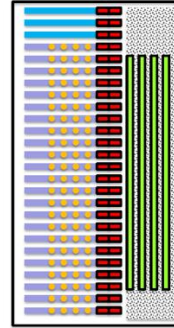
5 minutes for data centre to decide

# OCP integrated data centre design - the chain

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Business



Application



Open  
platform  
Software



Open  
Hardware

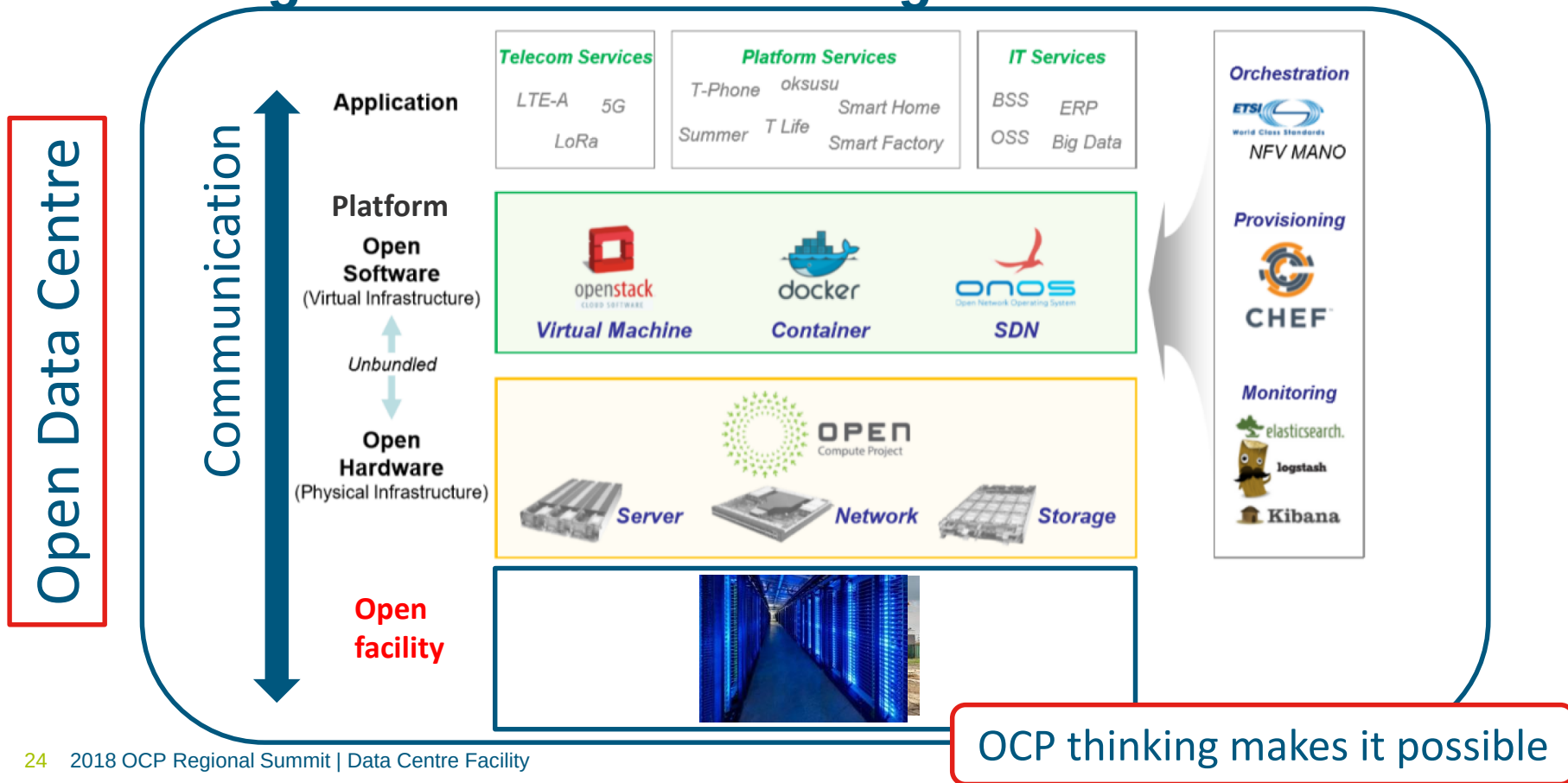


Data centre facility

One or Two way approach?



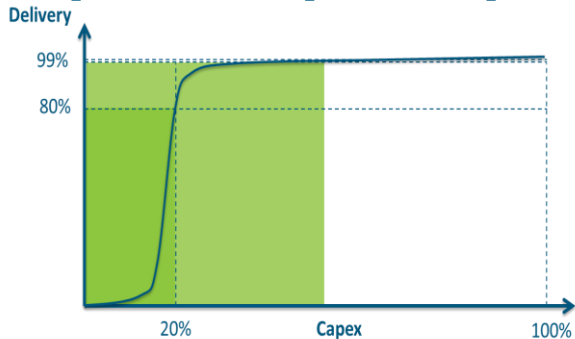
# OCP integrated data centre design - communication





Integrated Communication

# Wrap up the 4 principles



Get rid of the 50%



Blank sheet guidelines



5 minutes for DC to decide



Integrated Communication



Get rid of the 50%



Can we define the fifth principle together?  
5 minutes for DC to decide



Blank sheet guidelines



Integrated Communication

**Stijn de Kruijf**  
**Data Centre Developer**  
**T: +31 88 348 66 43**  
**M: +31 6 51851476**  
**E: [stijn.de.kruijf@rhdhv.com](mailto:stijn.de.kruijf@rhdhv.com)**



**“Our 4 questions to  
enhance society together”**



Requirements of  
stakeholders



Added value to  
client and society



Future proof

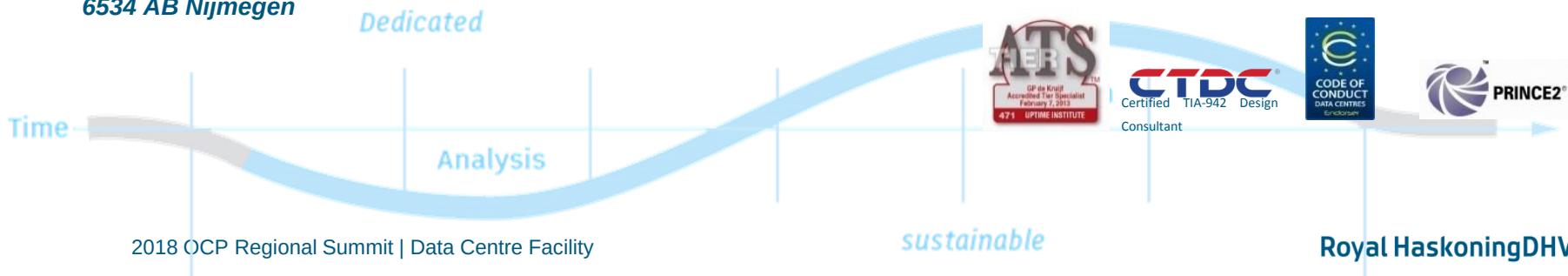


Resources and  
energy

**COMPETENCE CENTRE**  
**MISSION CRITICAL FACILITIES**

**P.O. Box 151, 6500 AD Nijmegen,**  
**Jonkerbosplein 52,**  
**6534 AB Nijmegen**

**Certified TIA 942 Design Consultant – EPI**  
**Uptime Institute Accredited Tier Specialist (ATS)**  
**Prince2 Practitioner certified**





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