Centre de Calcul de l'Institut National de Physique Nucléaire et de Physique des Particules

CC-IN2P3 machine room furbishing

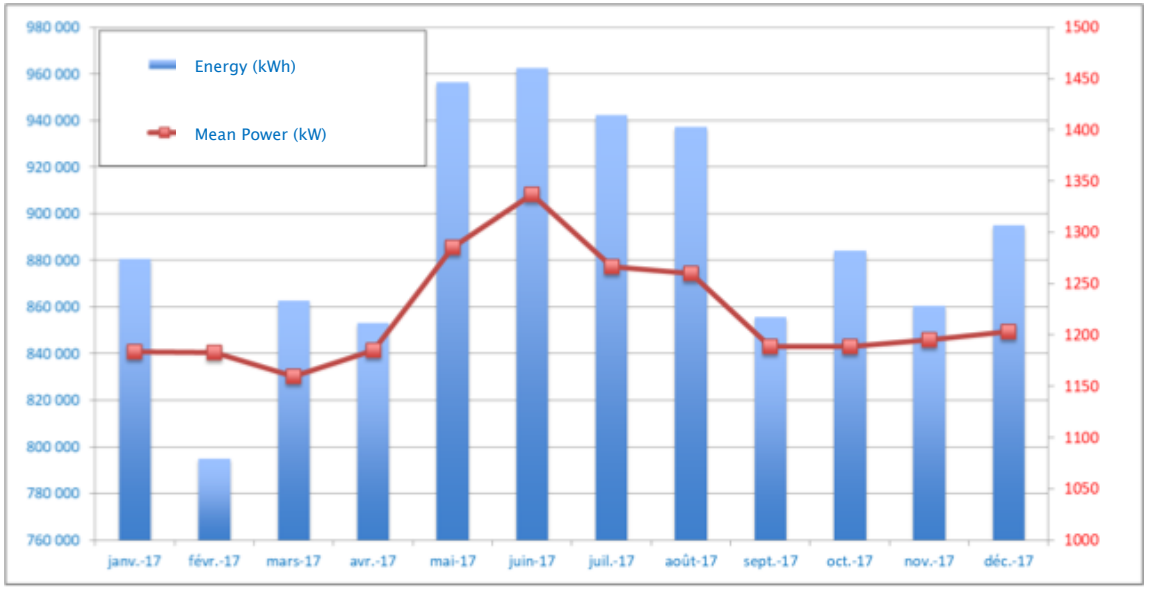
X. Canehan

CCIN2P3

cnrs

Power and Energy

- Mean Power per month around 1.2 MW last year
  - Peak above 1.5 MW



2017 Consumption analysis, Stéphane Lepers

- Not that much easy consumption gains left
  - Getting rid of ineffective servers
  - Virtualization
  - Infrastructure upgrades
    - Cooling Group: Speed Variation Upgrade

Energy cost will raise in 2018

2017 evolutions – Vil2 1st phase at max hosting capacity

- Vil-2 first 2 rows at max capacity: 61 racks
  - 400 kW max aisle A/B, low redundancy (single UPS path)
  - 600 kW max aisle C/D, highest redundancy (dual UPS paths)
    - Single distribution path for cooling

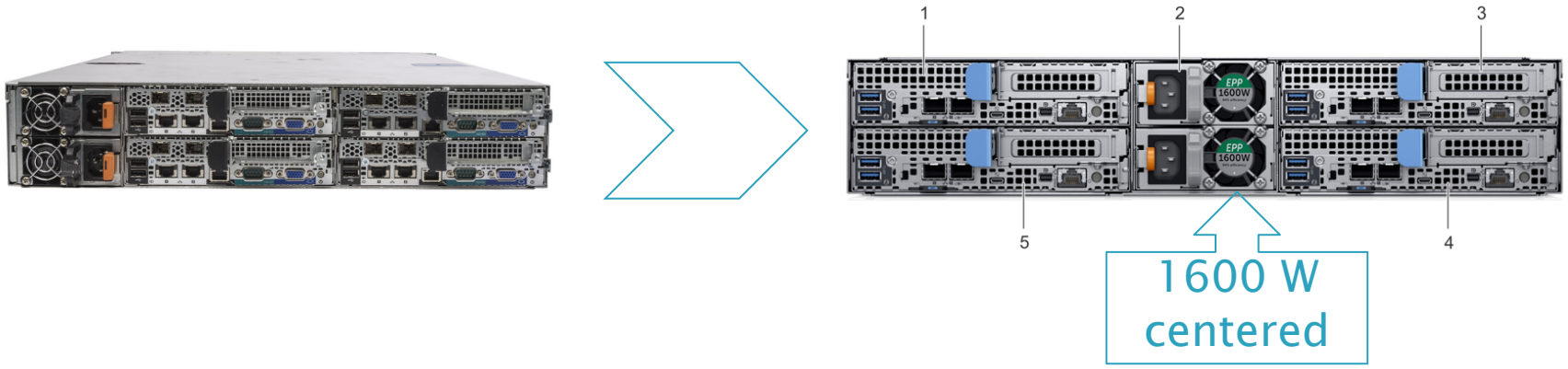
2017 – IT Waste Management

- Getting rid of tons of used hardware
  - 19 tons 2016
  - 7 tons 2017

- Best practices
  - Extending HW life
  - Re-Using
  - Recycling

- Contractor with agreements in regards of environmental laws. Hardware is deconstructed, converted to new raw materials, avoiding burying as much as possible.

- Computing node PSU position changes
  - Reconsidering PDU: position in rack and geometry



- Power unit sizing changes, leading to probable power socket change: 10A to 16A => PDU evolution

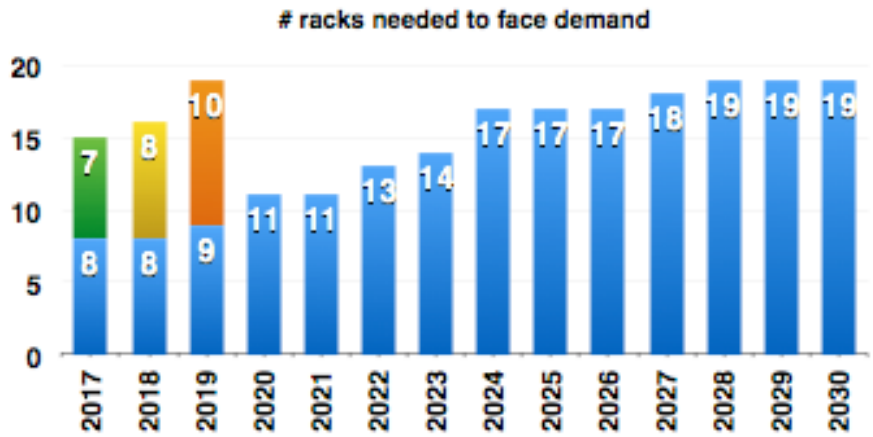
- Power distribution and power density per rack will change: infrastructure must adapt

2018 – Need for more racks

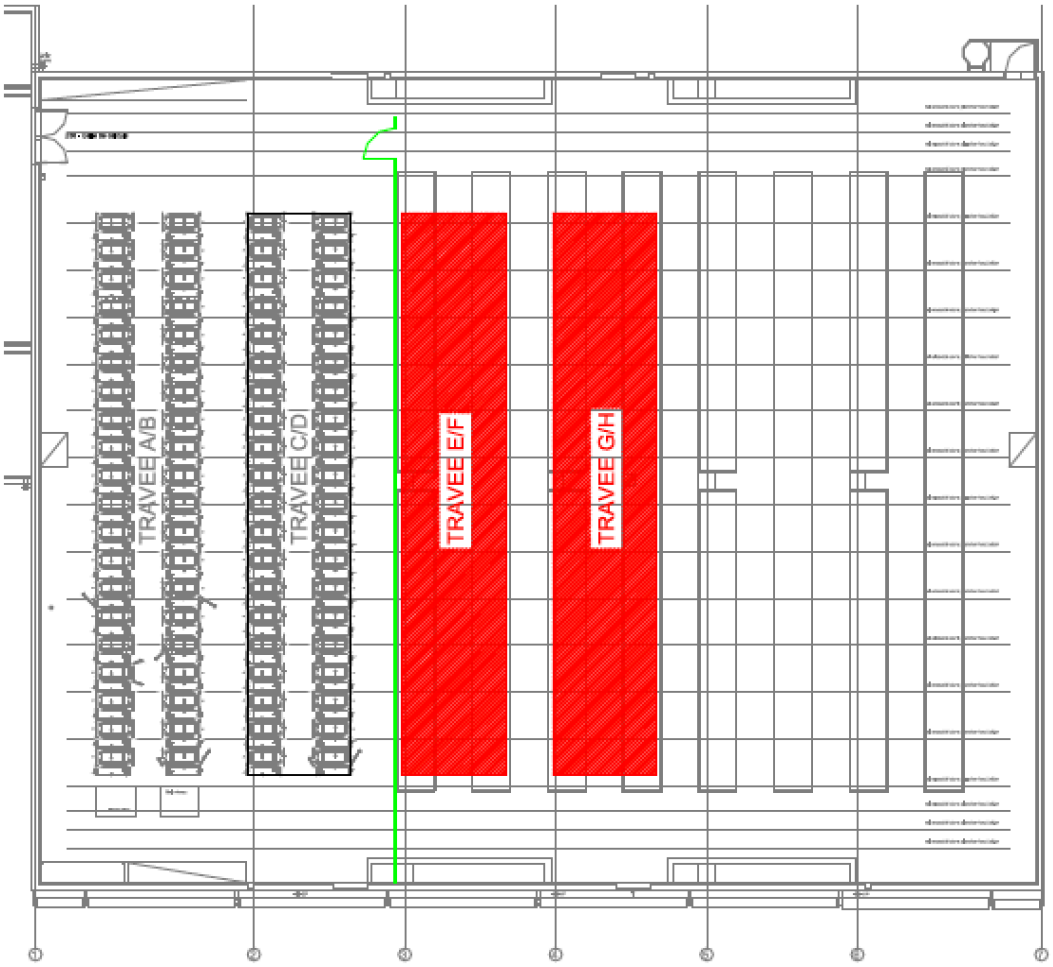
- Vil-1 refurbishing is expensive
  - Power distribution (from wall TD to rack centered)
  - CRAC or CRAH systems
  - Cooling generation driven to max
  - Raised floor detailed check needed
  - Mean power per rack below our target

- Converting our IT needs in rack number: we must extend Vil-2 capacity

- Reserve is enough for 2018



- Tier3 grade new aisles



- Upgrading existing redundant power lines
  - +600 kW shared by both new aisles at start
  - Aiming at 600 kW per line next
- Adding cold generation and distribution
  - Setting 2 new aisles
  - Upgrading C/D if possible
  - Overall redundancy assured with previous installation
  - Redundancy in a single aisle assured by 30 kW CRAH against 15 kW IT load, connected 101