

Site report of Wigner Datacenter

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Agenda

- Operation facts
- Cooling problem
- Development

Operation facts

- 231 racks occupied by CERN
 - The power load reached the 40% of planned max (good but not enough 😊)
- CERN IT consumption 8.5 GWh in 2016 (est.)
- Support ticket
 - cca 820 incident tickets (cca 3.2 tickets /workday)
 - cca 50 request tickets (cca 0.2 tickets /workday)
- 3rd 100G link to CERN
 - in progress

Operation facts

- PDU replacement campaign
 - 220 of 600 came out from factory with production error
 - Long story (manufacturer vs distributor vs contractor vs us)
 - Hard task
 - Parallel with installation campaign
 - One round has many steps
 - Strict schedule

Cooling problem

- History: see Szabolcs' presentation of last year
- (Mostly) caused by inappropriate chillers' control
 - Too many failed attempts
 - We decided to switch off the Rittal cooling system control
 - Manual control since 2015 fall

Cooling problem

- Solution
 - New, independent data collection system was built
 - Explored the behavior of coolant (esp. flow direction)
 - Tested different chiller setups
 - Looked up best experts in Hungary
 - Design new preliminary regulation(!)
 - The project to implement new regulation started in the last week (will be finished next April)

Cooling problem – New regulation

- New regulation of cooling system
 - Goals:
 - PUE optimization
 - Fully automated
 - Fault tolerance (& one „switch” to manual regulation in case of emergency)
 - Already done:
 - Opened chillers and made some changes (guarantee expired)
 - Collected some experience with different chiller setups

Development – HR

- Szabolcs (one of the 'founding fathers') left us in this August
- Substitute Szabolcs
 - Impossible mission with one person
 - Cut his role into 3 parts
 - Strategic
 - Service management
 - IT development
 - New organization structure
 - 2 people hired

Development – Infrastructure

- 5th room (originally test room)
 - Operating on max capability
 - Need to improve
 - Electricity: 30kW (N) -> 400kW (2N)
 - Cooling: 100kW (N) -> 440kW (N+1)
 - Security, fire protection ... : from zero
 - Still in design phase
 - Will be ready at the Q3 of 2017

Development – Cloud

- For Wigner RCP
- For MTA (Hungarian Academy of Sciences)
- For everybody (in case of R&D&I)
- Financed by MTA in the first year
- Self-sustainable

Development – Cloud 2

- Openstack based, IaaS cloud
- Today 1900 vCore
- 24 500 GB RAM
- 0.8 PB storage
- 0,5 PB tape
- Main step was done:
 - Hired new, dedicated people (2 IT engineers and 3 part-time, trainee engineers)

- **Thank You!**

- Domokos Szabó

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