ASGC site report

Felix Lee
Academia Sinica Grid Computing Centre (ASGC), Taiwan

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ASGC site report

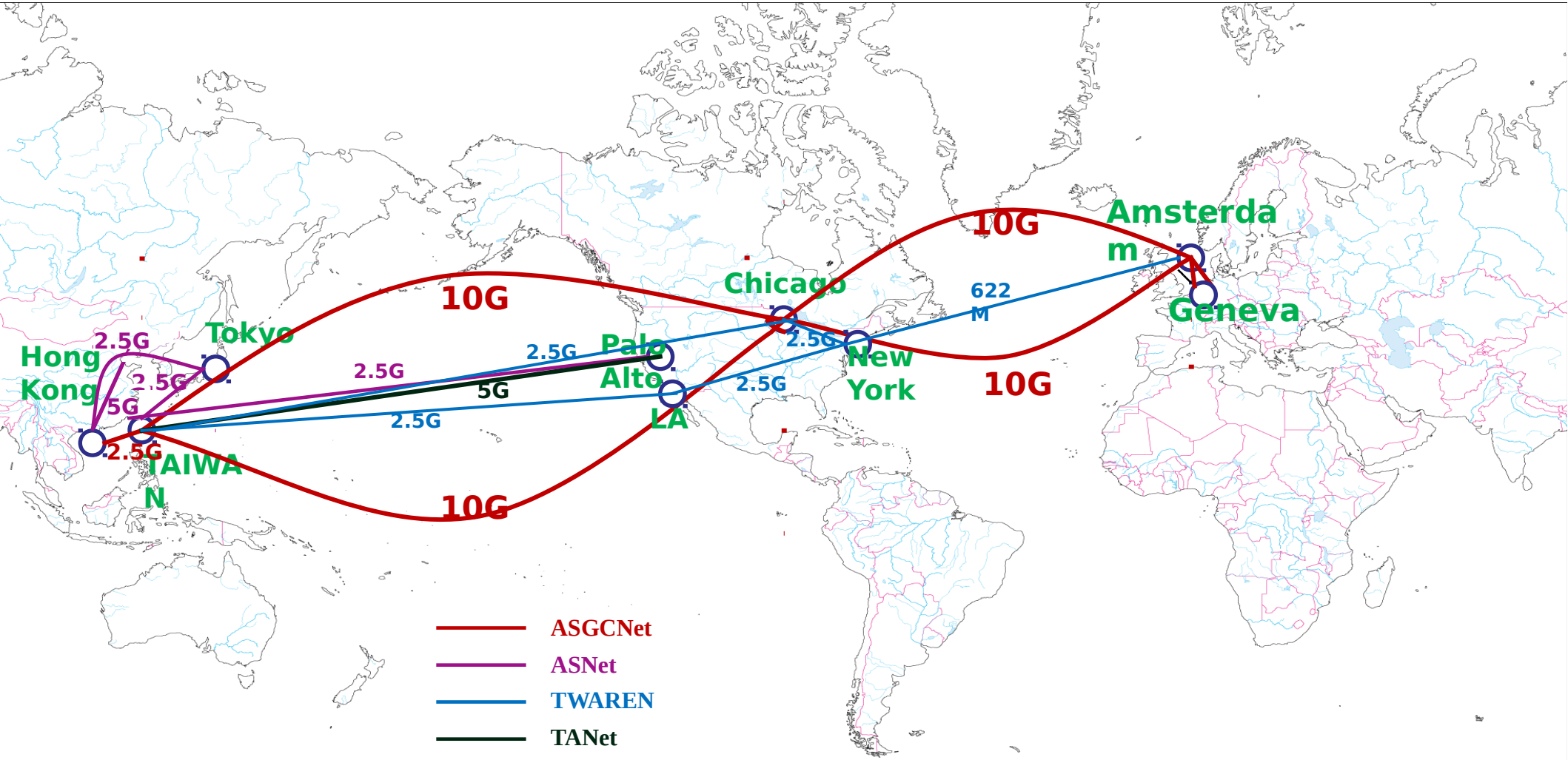
- Facility update
- Network(WAN) update
- Activities/events update for Grid/Cloud/HPC
- Software collaboration
- Hardware collaboration

Facility update

- Still targeting high denisty solutions because the rack space is pretty tight in our DC.
- Another Dell C6220 * 54, 648 cores + Dell 8164F 10Gb edge switch – for Cloud as hypervisors.
  - E5-2630L, 48 GB mem, 10GbE.
- HP S6500, SL2300s Gen8 * 96, 1536 cores – for HPC resources.
  - E5-2650L, 64 GB mem, IB QDR.
- Dell MD3660f, 480TB + 640TB
- Now, we have 18k cores and ~11PB storage in total in DC.

Network update

- Upgrade 10Gb+2.5Gb -> 10Gb*2 to CERN.



Grid service update

- NTP DDoS vulnerability is pain...
  - Several stratum1 ntp servers are being effected in Taiwan.
  - Things are improved, but still getting instability sometimes...
- Migrating most of services to VM.
- Evaluating EOS.
  - Start with AMS, so far so good.
- Withdrawing from CMS T1.
  - There are still some fights for that.., but no big hope..
  - Looking for another possibility to support CMS

Cloud service update

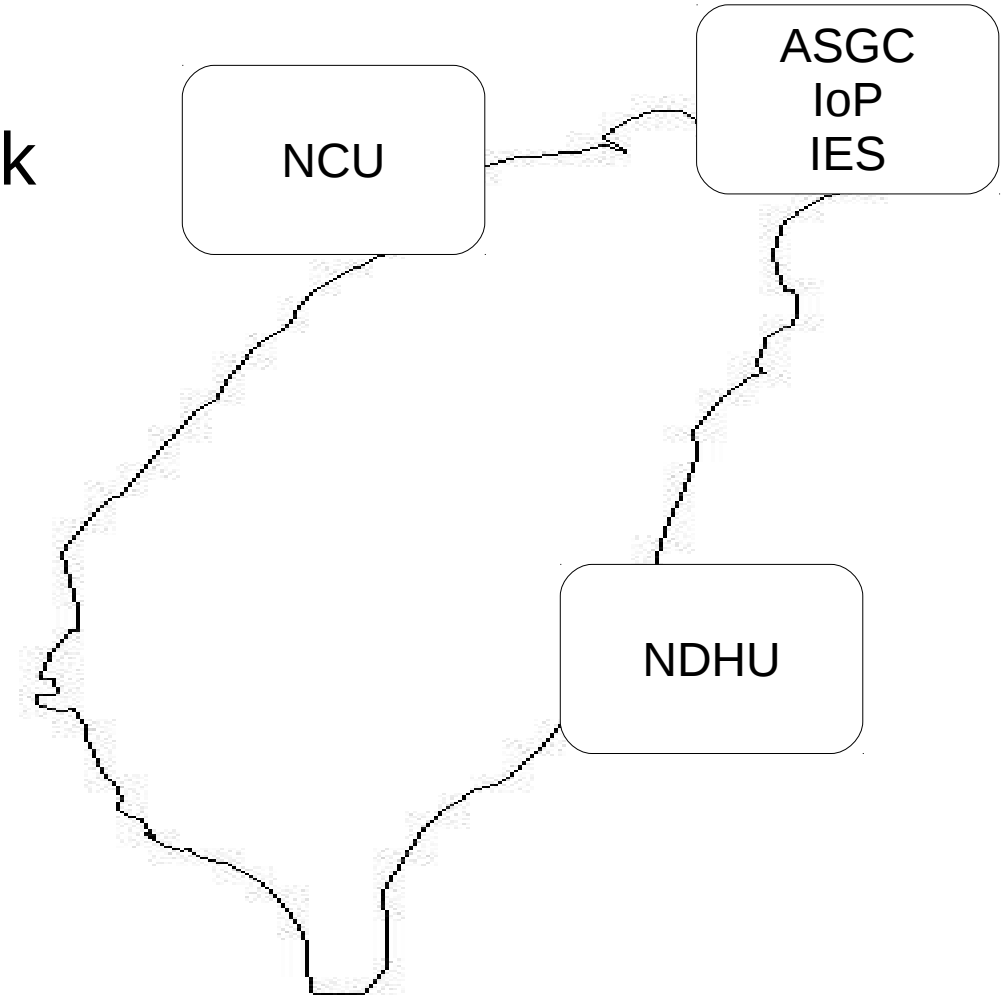
- Openstack Grizzy -> Havana
  - 108 hypervisors (1296 cores).
  - The upgrade to Icehouse is coming.
- OpenNebula 3.8.1(no more changes, watting to be decommissioned)
  - There are 960 cores now, but would migrate some hypervisors to Openstack.
- Ceph is now in production.
  - Cinder + Ceph RBD is working well.

Cloud service update

- A problem with Dell 8154F 10GbE edge switch.
  - The 20Gb uplink to our core switch could only get 100kB throughput...
  - After some debugging, it turned out that was compatibility issue between Dell 8154F and our Cicso core switch Nexus 7000.
    - To upgrade Dell switch firmware to fix this issue.

Cloud service update

- Building cloud federation in Taiwan.
  - 5 sites so far
  - With Openstack



HPC service update

- The debate between 10GbE and IB.
  - We did a lot of comparisons but..
    - IB QDR won because of $$... if we don't buy big IB switch.
  - Now, we have
    - 1984 cores with IB DDR, 3712 cores with IB QDR.
    - 1980 cores for 10 GbE, but will buy more IB QDR in the future, until the price of 10GbE is lower...
- Turning IB cluster into Openstack cloud is a little bit challenging.
  - Always has some problems with nova network.
  - Our staffs are still working on it..
- Evaluating EOS for HPC as well.
  - Its low latency gains good potential for HPC.
  - The EOS fuse performance is quite competitive to Lustre.
  - Need to also work on its **native API**.

HPC service update

- An issue when we were purchasing new IB QDR cluster.
  - Vendor offered us: Voltaire Grid director 4036 QDR switch + connectX-3 IB card.
    - Things didn't work.
    - Then we figured out that Voltaire 4036 is totally incompatible with connectX-3...
    - Vendor admitted their mistake and replaced Voltaire 4036 by SX6036

Software collaboration

- Mainly, collaborating with Atlas and the BigPanDA project.
  - Helping on PanDA - RUICO integration.
  - Also working on couple RUCIO components:
    - File consistency check
    - Object storage support, e.g. CEPH
  - Sending three people to CERN in order to work closely with Panda and RUCIO developers.
- A little work with CERN IT-PES for EGI cloud SSM2 accounting.

Hardware collaboration

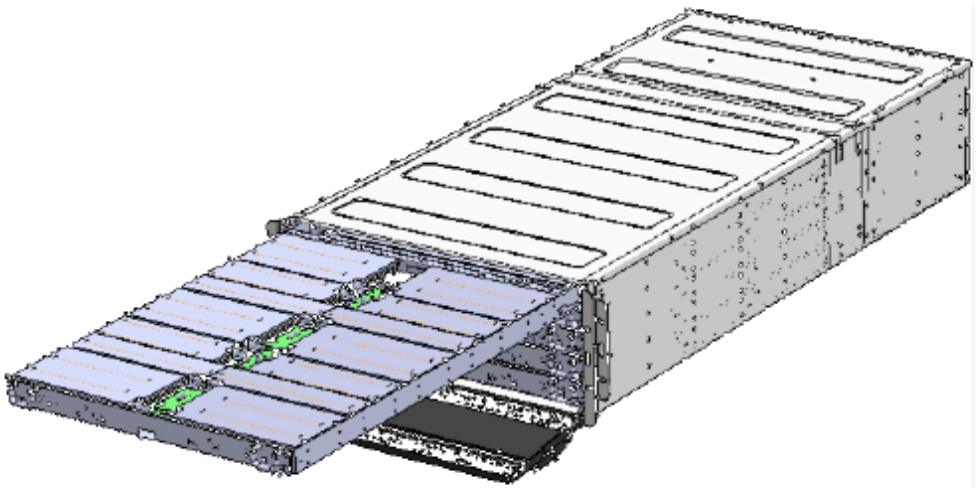
- Fanless & UPSless computer facility design
  - Using static heat sinking.
  - Using battery as second PSU.
- Now we have more industry partners:
  - Supermicro, Trendmicro and some local manufacturers.
- 1st prototype was reported in HEPiX spring 2013
- 2nd prototypes are almost done:
  - Fanless rack
  - Fanless 50 bay storage
  - Fanless server.

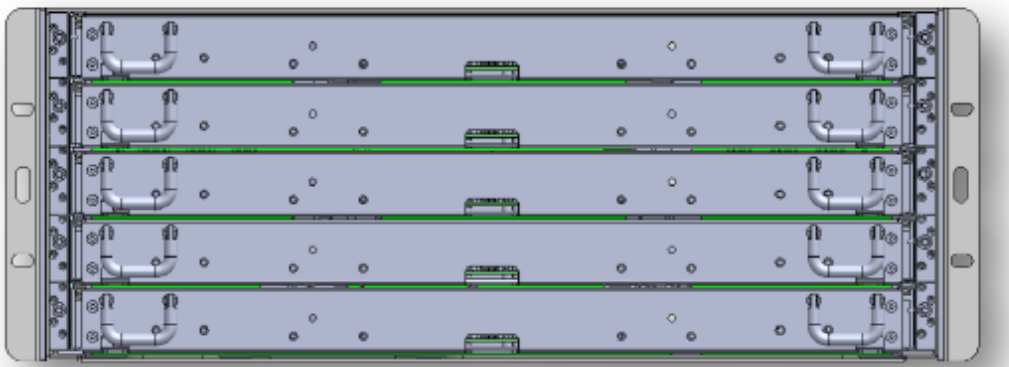
Hardware collaboration

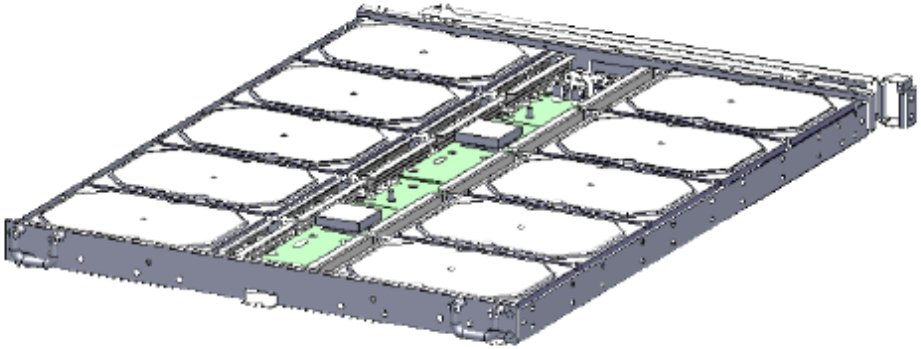
- Fanless rack:

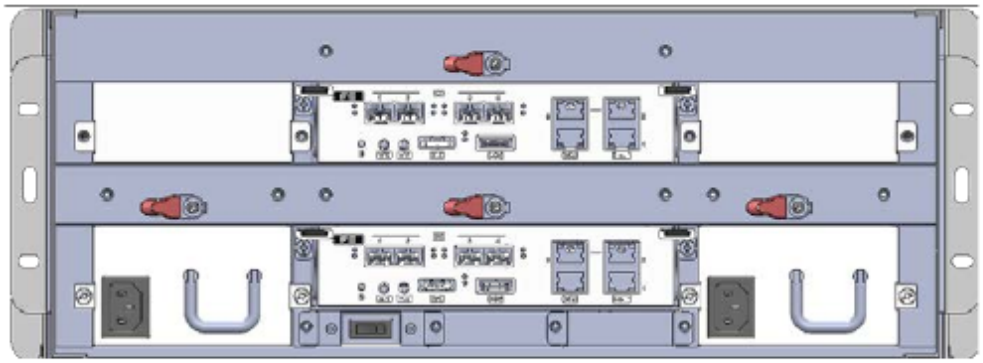
Hardware collaboration

- Fanless storage, 4U 50bays:



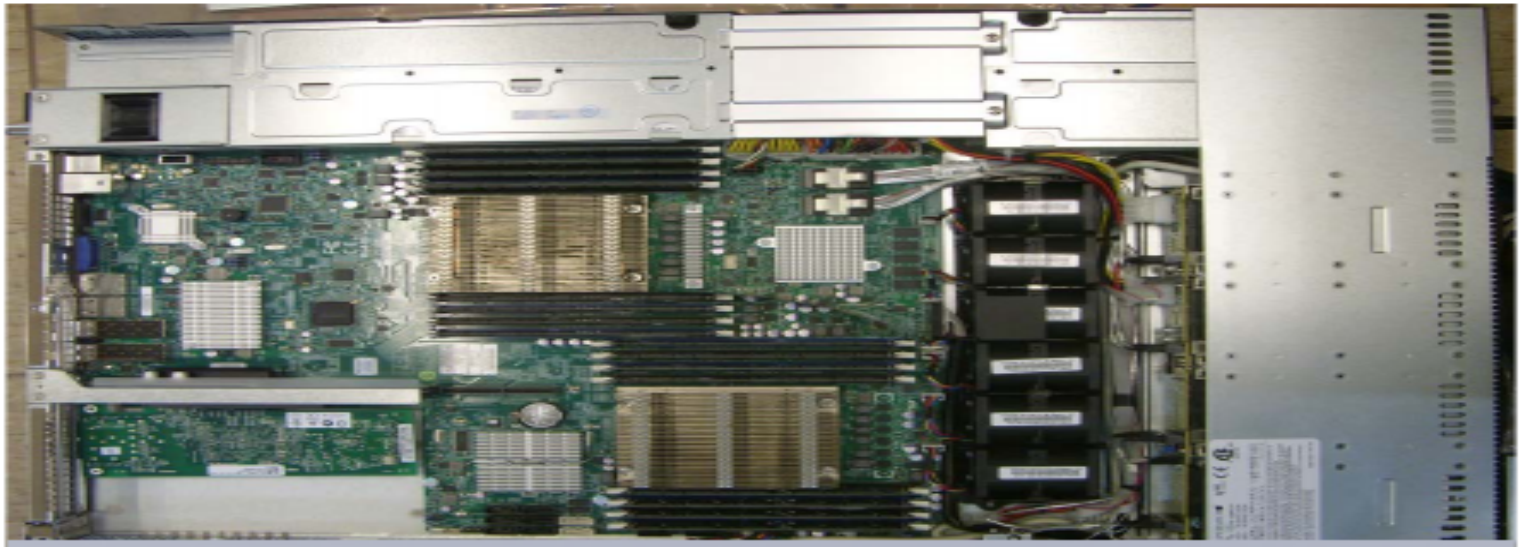


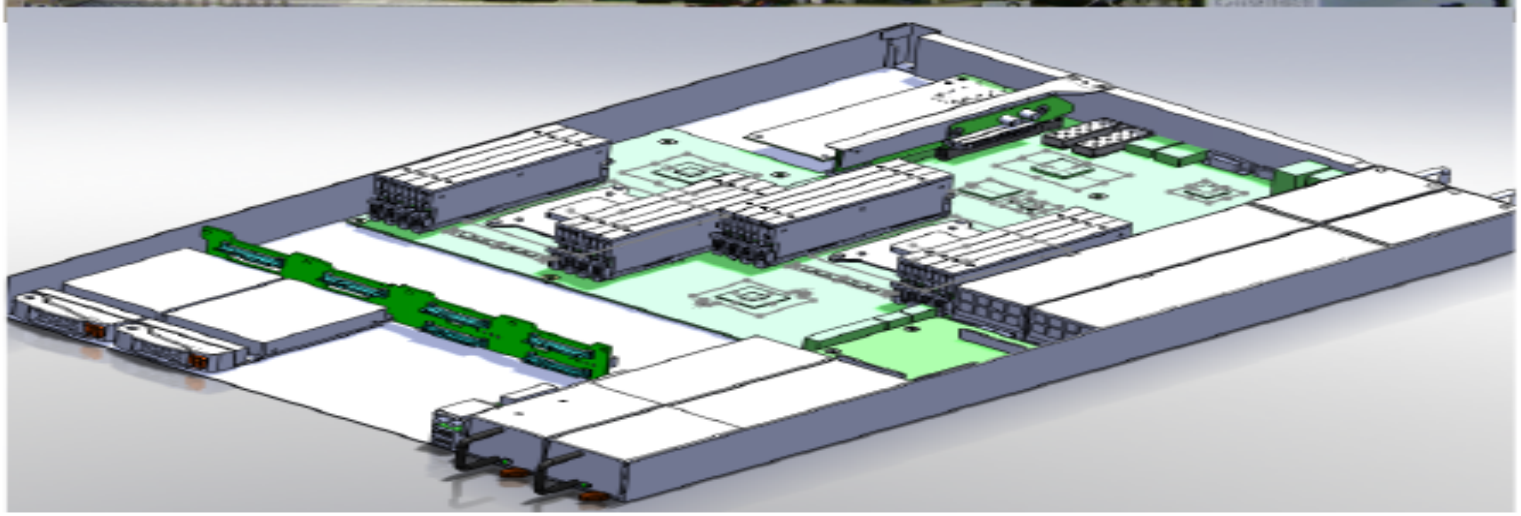




Hardware collaboration

- Fanless server, 1.5U:





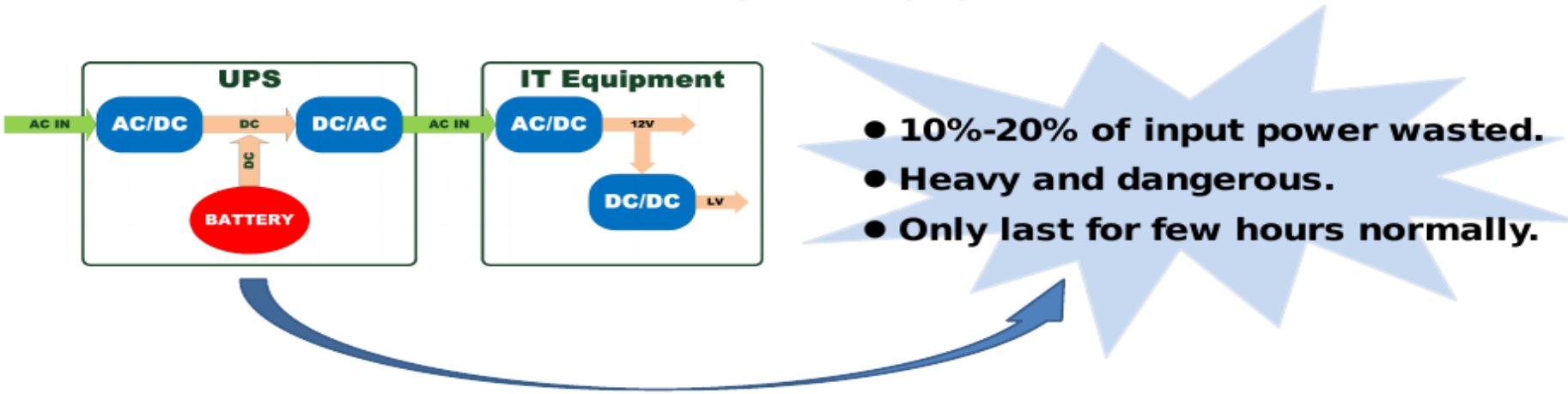
Hardware collaboration

- Having a demostration of UPSless servers along with Supermicro in Computex 2014.

COMPUWARE ACADEMIA GCCA
SuperMicro SINICA

Save energy by getting rid of your UPS

- *Traditional Power Distribution for IT equipment*



- *Solution – Battery Backup PowerSupply*

Thanks a lot!