BSC infrastructure roadmap

**Compute**
- **MN3**, 1.1 PFlops
  - Intel SB + Intel KNC, IB FDR10
- **MN4**, >13.7 PFlops
  - General Purpose: 11.15 PFlops, Intel SKL+OPA
  - Emerging Technologies: P9+Volta (1.6PF), ARM (0.5PF), ‘KNH’ (0.5PF)
- **MN5**, pre-exascale
- **MT2**, 183 TFlops
  - NVIDIA 252xM2090
- **MT2**, 339 TFlops
  - NVIDIA 78xK80 + 122xM2090
- **MT2**, 183 TFlops
  - NVIDIA 252xM2090
- **Data Analytics Cluster**
- **Cluster services for industry including SMEs**
- **Cluster BSC-CRG-IRB**

**Storage**
- **GPFS 2PB**
  - 15 GB/s
- **GPFS 3PB**
  - 37 GB/s
- **GPFS 15PB**
  - 130 GB/s
- **GPFS 20-40 PB**
  - 500 – 1000 GB/s
- **Active Archive, 6 PB**
- **Backup, 6 PB**
- **HSM, 100 PB**
  - 90% on tape
- **Backup, 10 PB**
- **Backup, 20-40 PB**

**CPD**
- **CPD Capella, MN3**
- **CPD Capella, MN4**
- **CPD Capella (4 MW)**
- **New CPD (20MW)**
- **Network, 10Gbps**
- **Network, 2x10Gbps**
- **Network, 4x10Gbps**
<table>
<thead>
<tr>
<th>#</th>
<th>Name</th>
<th>Site</th>
<th>Country</th>
<th>Total Cores</th>
<th>Rmax</th>
<th>Rpeak</th>
<th>HPCG [TFlop/s]</th>
<th>Power (kW)</th>
<th>Power Efficiency [GFlops/Watts]</th>
<th>Processor</th>
<th>Accelerator Cores</th>
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5 - HPC Context

The graph shows the development of high-performance computing (HPC) from 1993 to 2017. Various countries are represented, with China, Korea, South, Italy, Canada, France, Germany, United Kingdom, Japan, and the United States. The y-axis represents the number of supercomputers, ranging from 0 to 500. The x-axis represents the years from 1993 to 2017. The graph indicates a significant increase in China's supercomputer count during the early 2000s, followed by a decline in more recent years.
EuroHPC: to European HPC technologies

Declaration signed in Rome, March 23rd, 2017 by:

France        Germany        Italy        Luxembourg        Netherlands        Portugal        Spain

Agree to work towards the establishment of a cooperation framework - EuroHPC - for acquiring and deploying an integrated exascale supercomputing infrastructure that will be available across the EU for scientific communities as well as public and private partners.
Roadmaps to Exaflop

From Tianhe-2...
...to Tianhe-2A
with domestic technology.

From K computer...
...to Post K
with domestic technology.

From the PPP for HPC...
...to future PRACE systems...
...with domestic technology.
THANK YOU!

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