From EGEE to EGI

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e-infrastructure

EGEE has achieved a lot!

Lessons Learned

- **Supporting diverse communities is hard**
  - One middleware distribution (gLite) means compromises
  - Focusing on a single operating model provides tensions
- **Supporting a large operational infrastructure is costly**
  - Communication and coordination across 260+ sites
  - Running hardware: compute, storage, networking, ...
  - Running software: site, domain specific, ...
- **A production infrastructure does yield results**
  - Recent reconstruction events from the first LHC run
  - *In silico* drug discovery searches
  - Fusion simulations

What does the move to EGI mean?

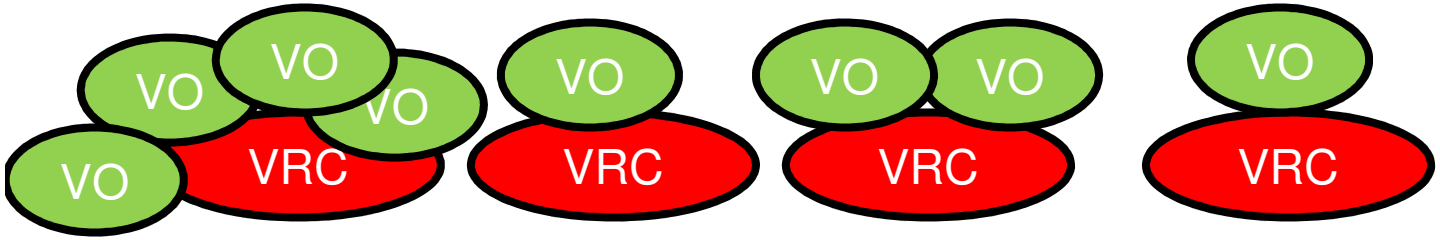
- **An opportunity!**
  - Draw a line under the experimentation in EDG & EGEE
  - Scope activities and structures so they are sustainable
- **A challenge!**
  - The technology landscape changes and we must change with it
  - Increasing diversity of application models and resources
    - Data Intensive Science is getting ever more intensive
    - Expand beyond core EGEE high throughput grids
    - Encompassing desktop and high performance grids
    - How do virtualisation and cloud computing models change things?
- **A business model!**
  - Add value where you can in providing a generic infrastructure
  - Provide an open extensible infrastructure

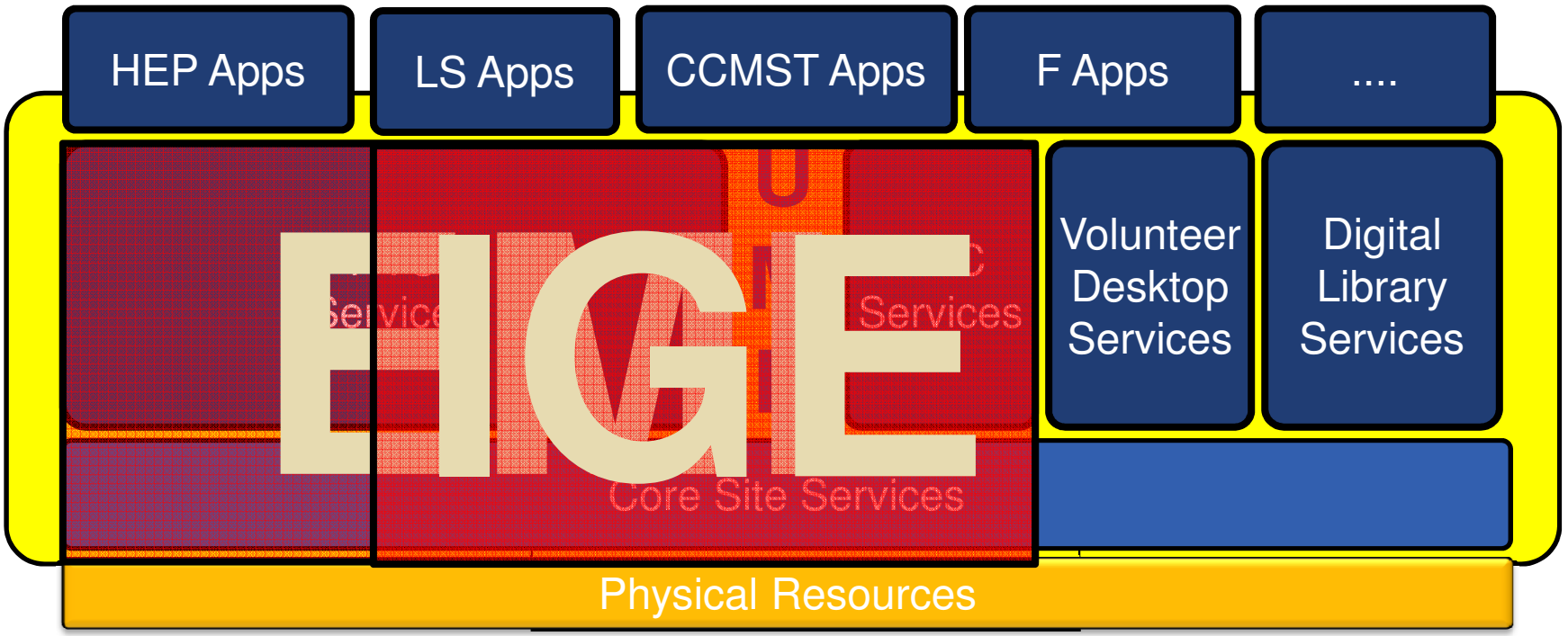
What will EGI initally focus on?

- **Provide a secure reliable generic infrastructure**
  - Integrate resources based on gLite, UNICORE, ARC, Globus, ...
- **Expand the user communities using the infrastructure**
  - Continue support with EGEE communities
  - Engage with ESFRI projects to support their requirements
- **Improve the efficiency of the infrastructure**
  - Jobs, users & data continue to increase
  - Utilisation and effectiveness of the resources needs to match

Use new technologies to make middleware a domain specific decision

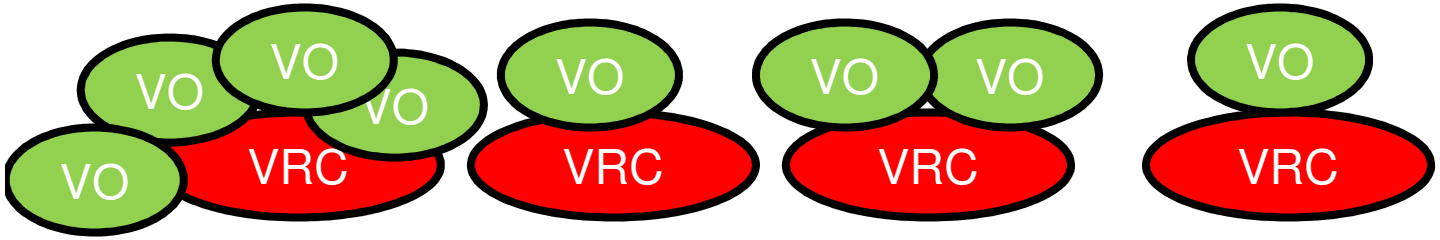
Supporting Multiple Communities

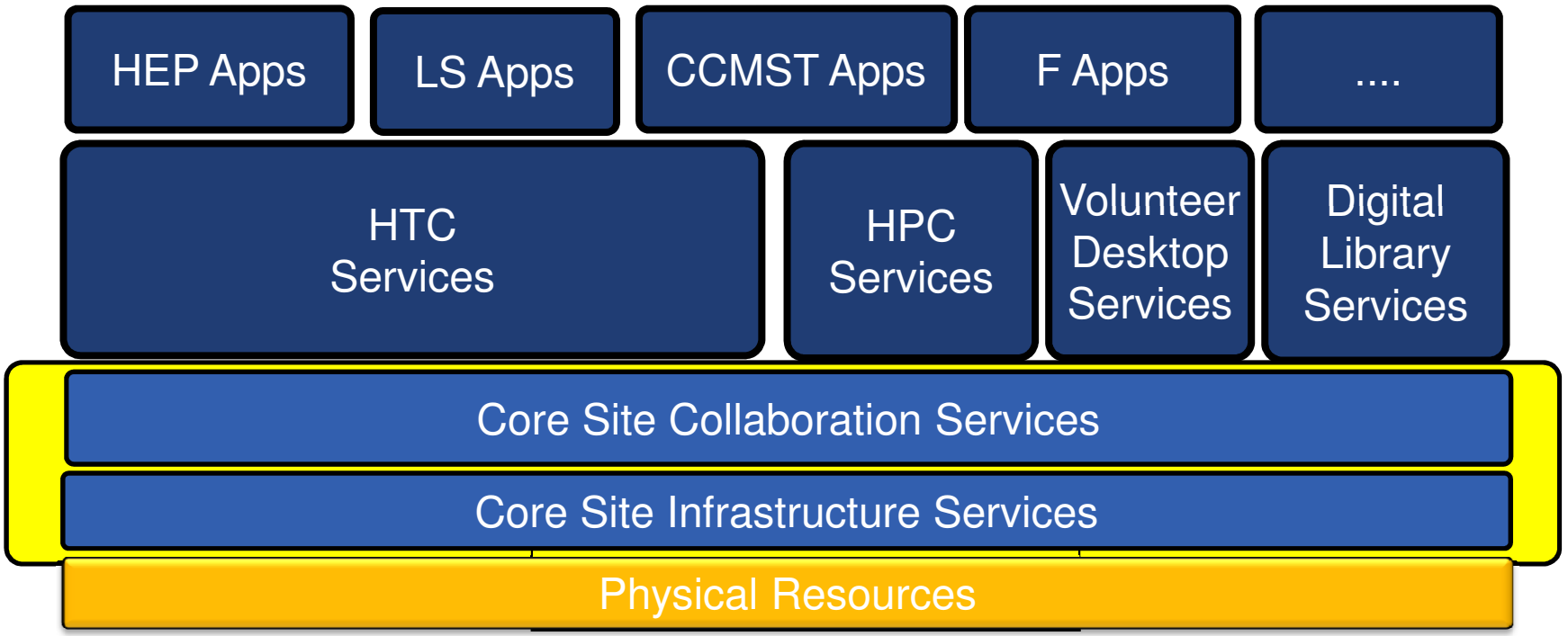




Cloud technology to provide a minimal set of 'Core Site Services'

Supporting Multiple Communities



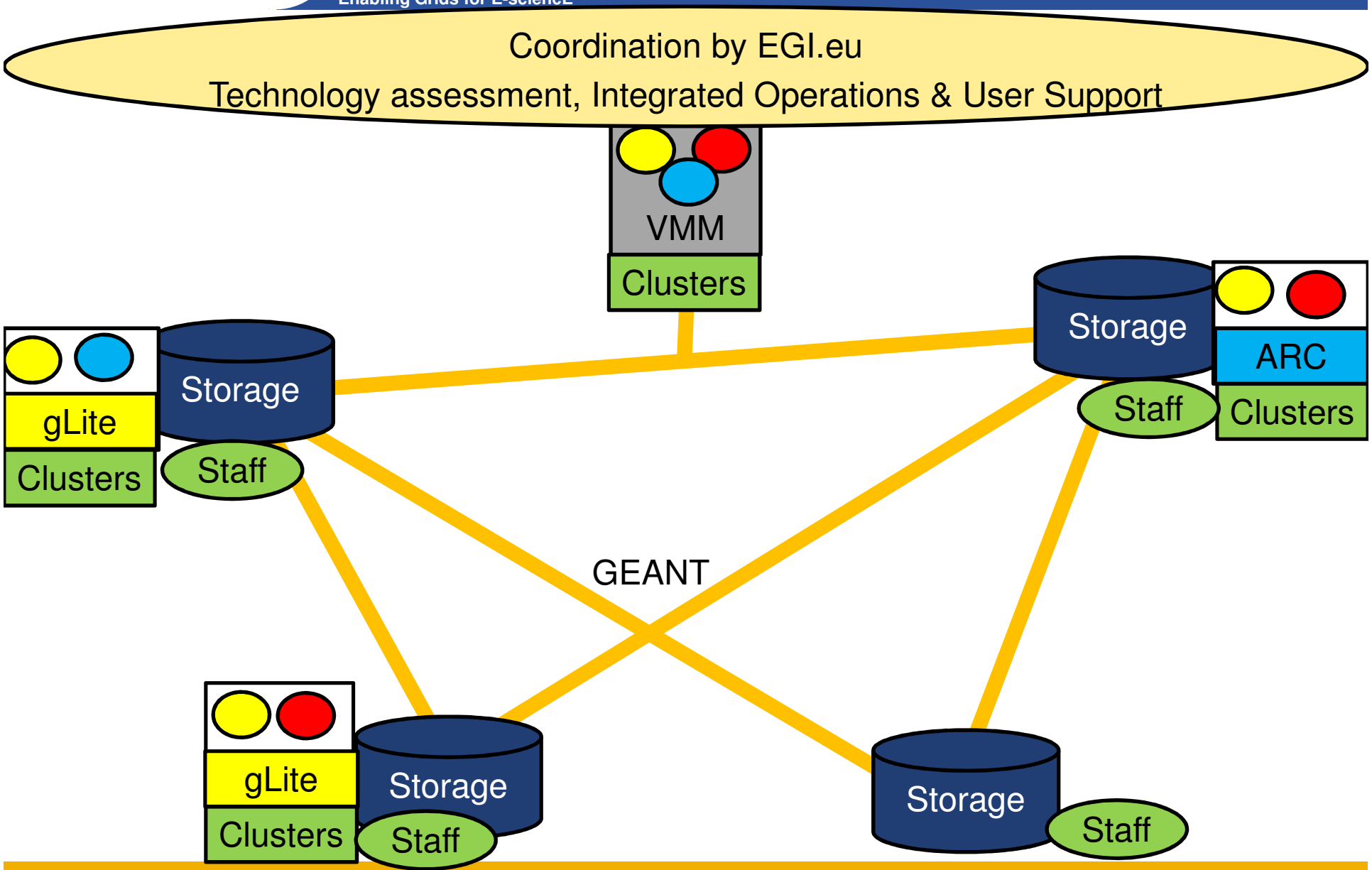


Core Site Infrastructure Services: European Cloud Infrastructure

European Cloud Infrastructure

- **Core resources from research centres within Europe**
  - Able to 'burst out' to other countries and commercial providers
- **Use interoperable cloud infrastructure**
  - Sites deploy the VM management technology they want
  - Securely integrated into a reliable infrastructure
- **Focused on providing an Infrastructure Service**
  - Application domains (VOs) source and run their own services
  - VO Managers deploy & run these services on the infrastructure
- **Partnership of Technology Providers**
  - Provide a secure platform for launching VMs across Europe
  - Provide a testbed for bring new site VM managers to production
  - Provide virtualised domain specific environments
    - Experimenting with virtualised worker nodes in EGEE:
      - *E.g.INFN, BiG Grid, CERN, ...*

Cloud for Data Intensive Science



The EGI-InSPIRE Project

Integrated Sustainable Pan-European Infrastructure for Researchers in Europe

- **A 4 year project with €25M EC contribution**
  - Project cost €70M
  - Total European Grid Effort ~€330M
  - Global Scope: 41 partners
    - EGI.eu, 37 NGIs, 2 EIROs, APGI (~11 partners, 8 countries)
- **Project effort:**
  - 8138PM mixed EC/NGI/EGI.eu funding model
  - 1100PM unfunded Asia Pacific Grid Initiative
- **Provide the framework to enable European Innovation**
  - Research: Enable Data Intensive Science in the ERA
  - Technology: Explore new approaches: Grids, Desktops, Clouds, ...
  - Software: Bring external components into production deployment

Summary

- **EGEE has provided a PoC of a production e-infrastructure**
- **EGI-InSPIRE: a sustainable production e-infrastructure**
  - EGI.eu is now a legal entity based in Amsterdam
- **Sustainability**
  - Business model of providing infrastructure services
    - Focusing the core needed to integrate different resource centres
  - Flexibility to adapt the infrastructure to the expanding user base
    - Provide a platform for launching VMs
  - Reduce barriers for data intensive science collaboration
    - Integration with GEANT provides unique offering
  - Support to ESFRI projects and new communities
    - Flexibility to run the services and software they need