WP2 and GridPP UK Simulation

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EDG – WP2

Overview

- WP2 Summary
  - Package Overview
  - Functionality
  - RLS
  - Outlook
- OptorSim
  - Results
  - Improvements

WP2 – Package Overview

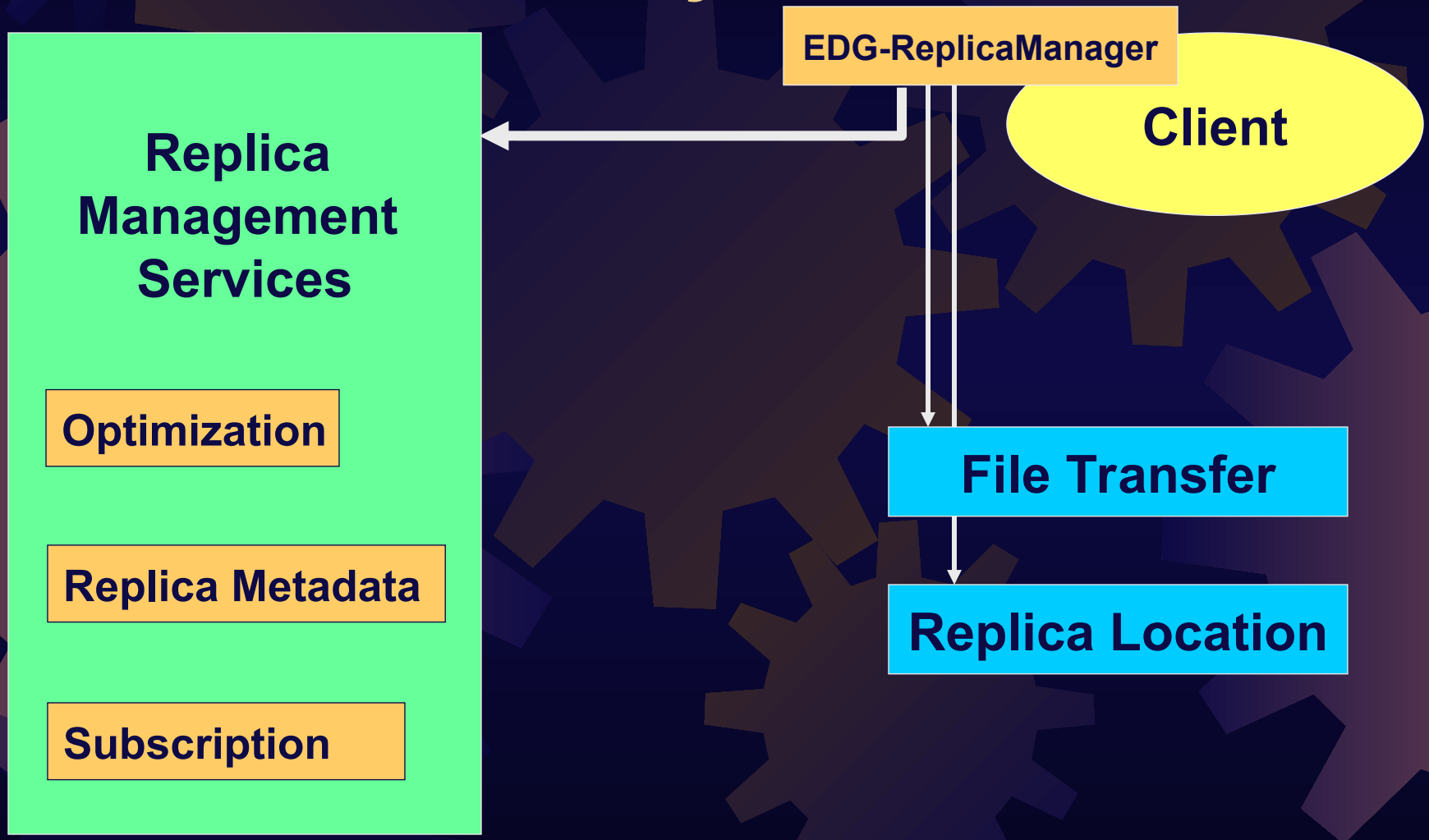
Moving to Web Services:

- GSI-enabled Web Services.
- Secure SOAP communication.

Components:

- *Security* : GSI-enabling Web Services fitting the EDG security framework
- *RLS* : Replica Location Service
- *Reptor* : Replica Management Services
- *Replica Manager*: Client to Replication Services
- *Spitfire* 2 : Customizable metadata access

WP2 Functionality



WP2 Functionality

EDG Replica Manager client

- Entry point for all clients

Replication Optimization Service

- Replica selection based on network metrics (WP7)

Replication Storage Handler

- Subscription-based replication

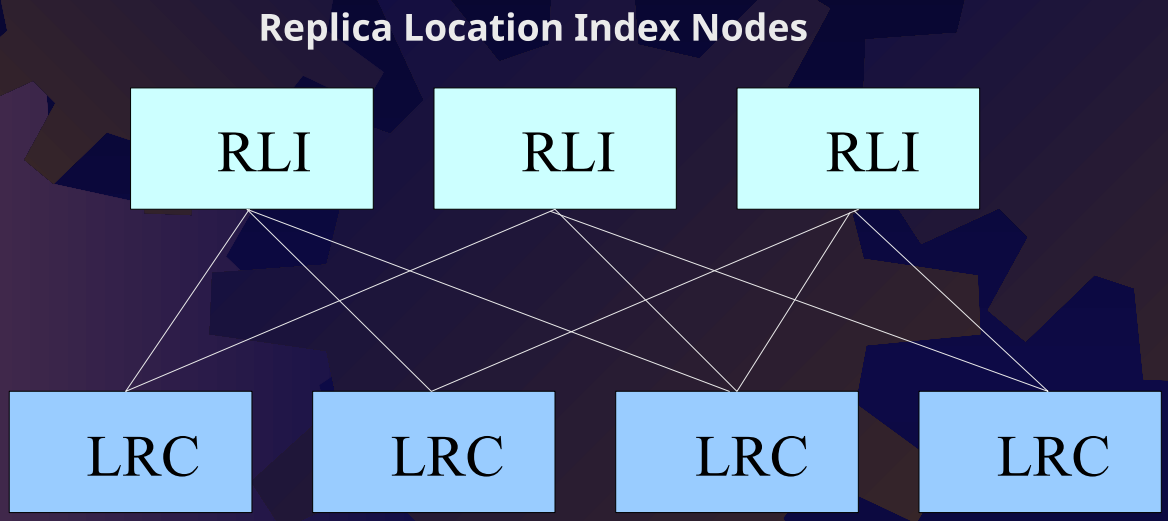
Replica Location Service

- Local Replica Catalog services LRC: Logical to Physical file mappings
- Replica Location Index services RLI: index on Logical names

Replication Metadata Catalogue

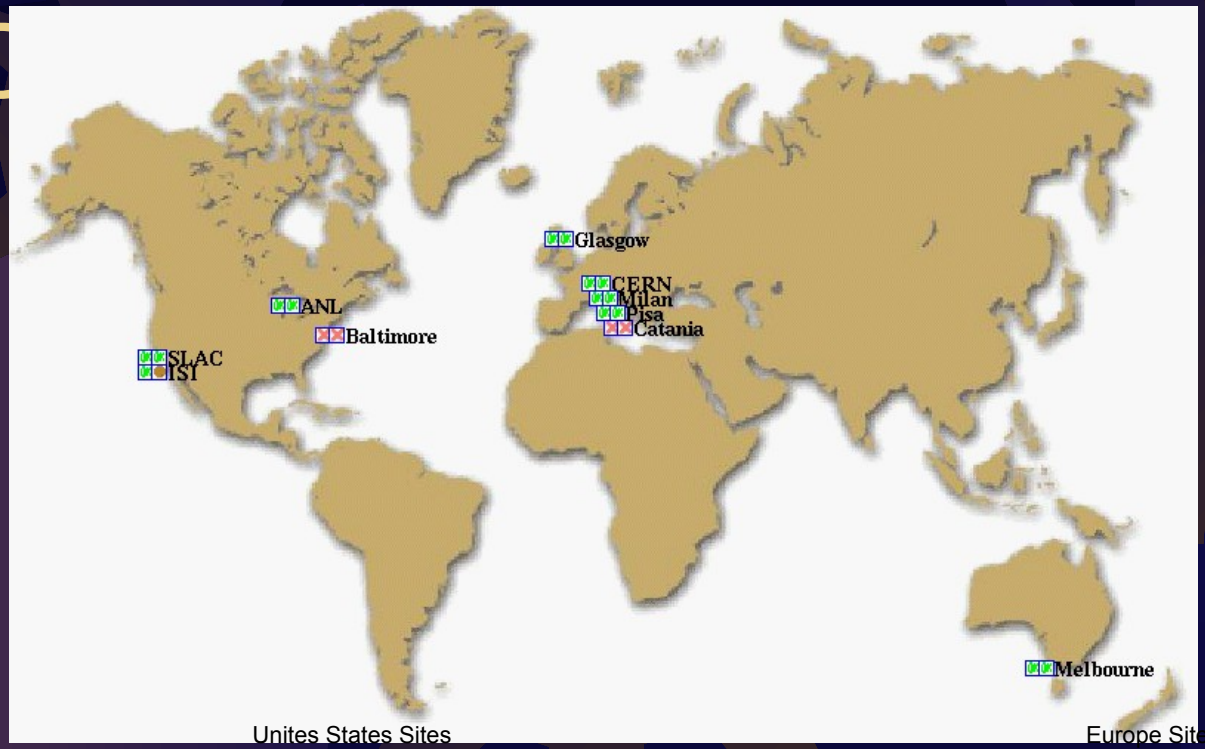
- An instance of Spitfire with RDBMS backend and specialized schema

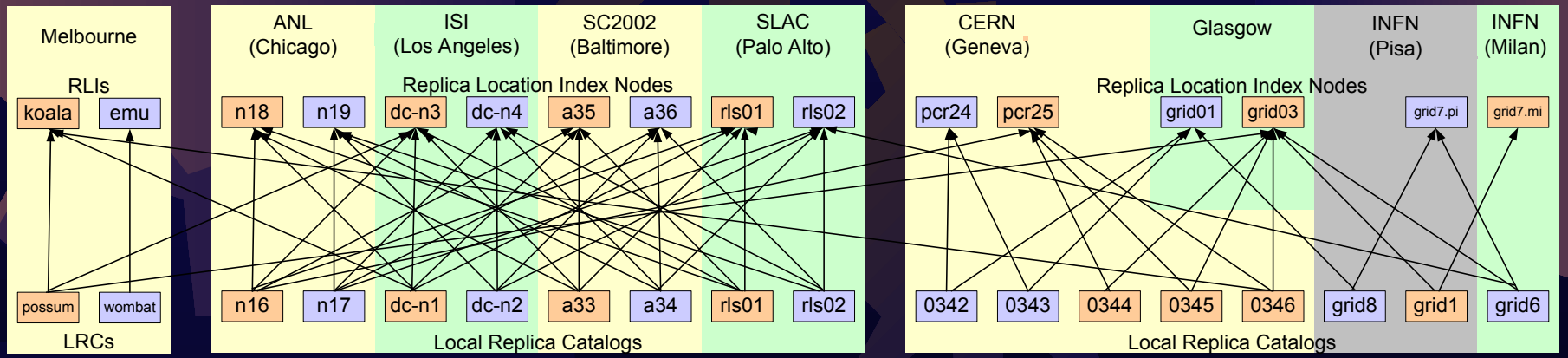
Replica Location Service RLS



- Local Catalogs hold the actual name mappings
- Remote Indices redirect inquiries to LRCs actually having the file
- LRCs are configured to send index updates to any number of RLIs

RLS D


Glasgow
CERN
Milan
Pisa
Catania
ANL
Baltimore
SLAC
ISI
Melbourne
Australia Sites
Unites States Sites
Europe Sites


Melbourne
RLIs
koala
emu
possum
wombat
LRCs
ANL (Chicago)
ISI (Los Angeles)
SC2002 (Baltimore)
SLAC (Palo Alto)
Replica Location Index Nodes
n18
n19
dc-n3
dc-n4
a35
a36
rls01
rls02
n16
n17
dc-n1
dc-n2
a33
a34
rls01
rls02
Local Replica Catalogs
CERN (Geneva)
Glasgow
INFN (Pisa)
INFN (Milan)
Replica Location Index Nodes
pcr24
pcr25
grid01
grid03
grid7.pi
grid7.mi
0342
0343
0344
0345
0346
grid8
grid1
grid6
Local Replica Catalogs

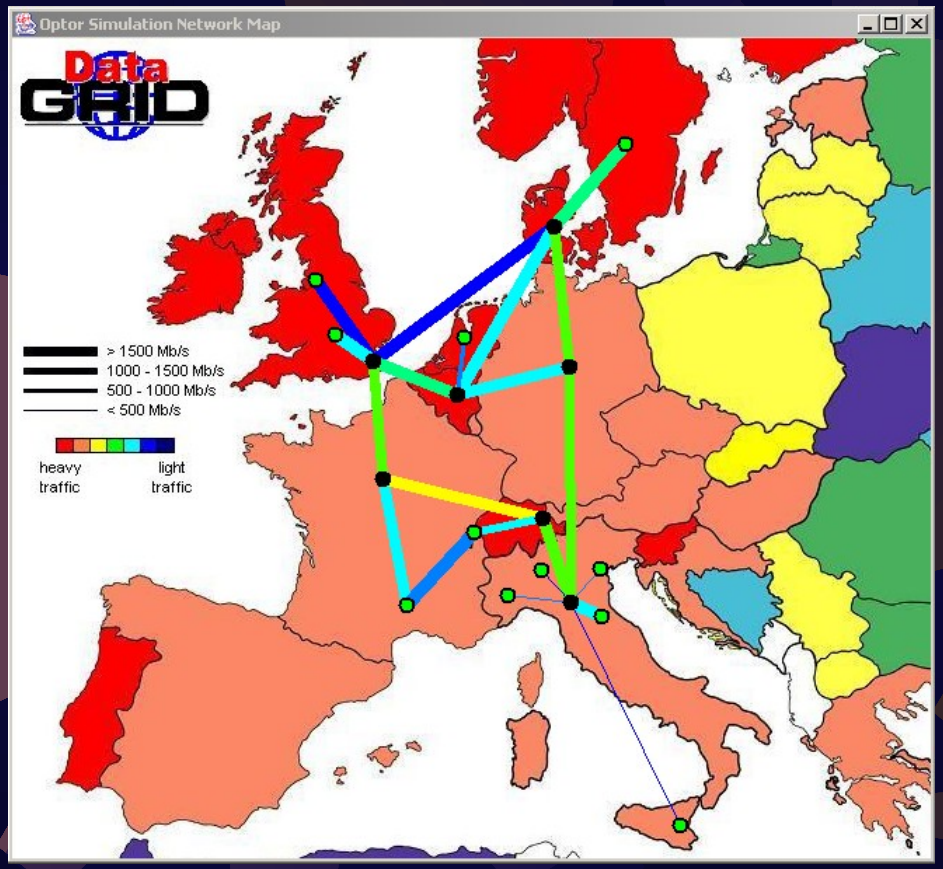
Outlook

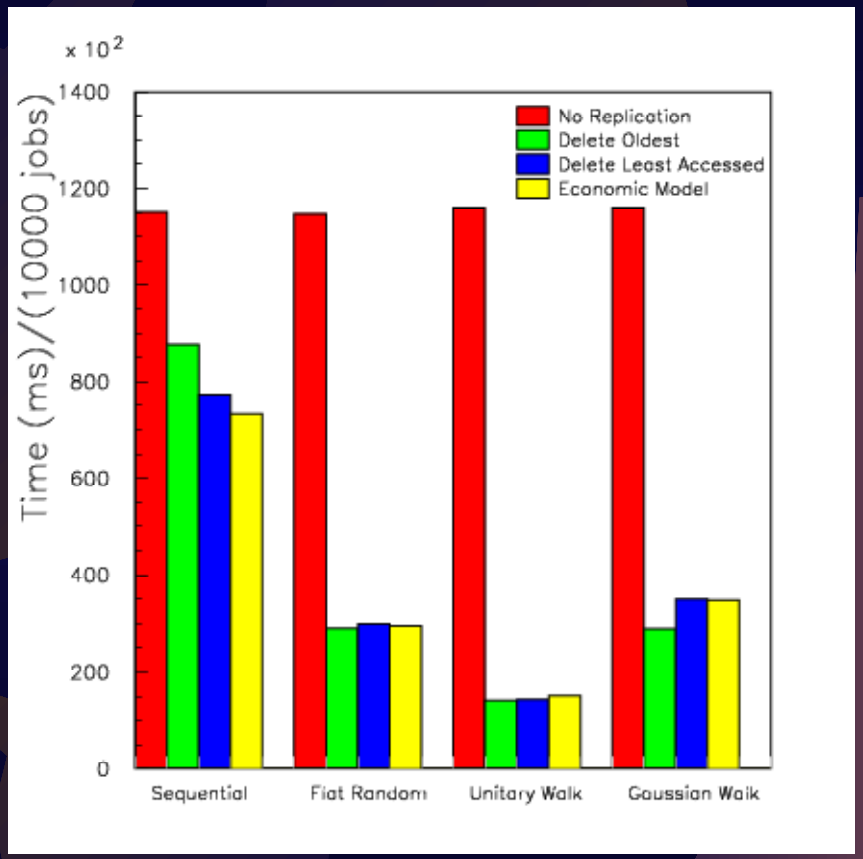
- Testing WP2 software with RH7.3
  - Have built a mini-testbed
  - Begin building LCFGng objects
- Spitfire 2.1.0 released
  - SOAP and XSQL security working
  - Secure SOAP client tested

OptorSim - Introduction

- Test replication optimisation algorithms
- Model each CE and a single RB as concurrent Java threads.
- Input realistic file, job, and resource sizes.
- Include minimal scheduling algorithm together with policies.
- **http://cern.ch/grid-data-management/optimisation/optor/**

OptorSim - Results





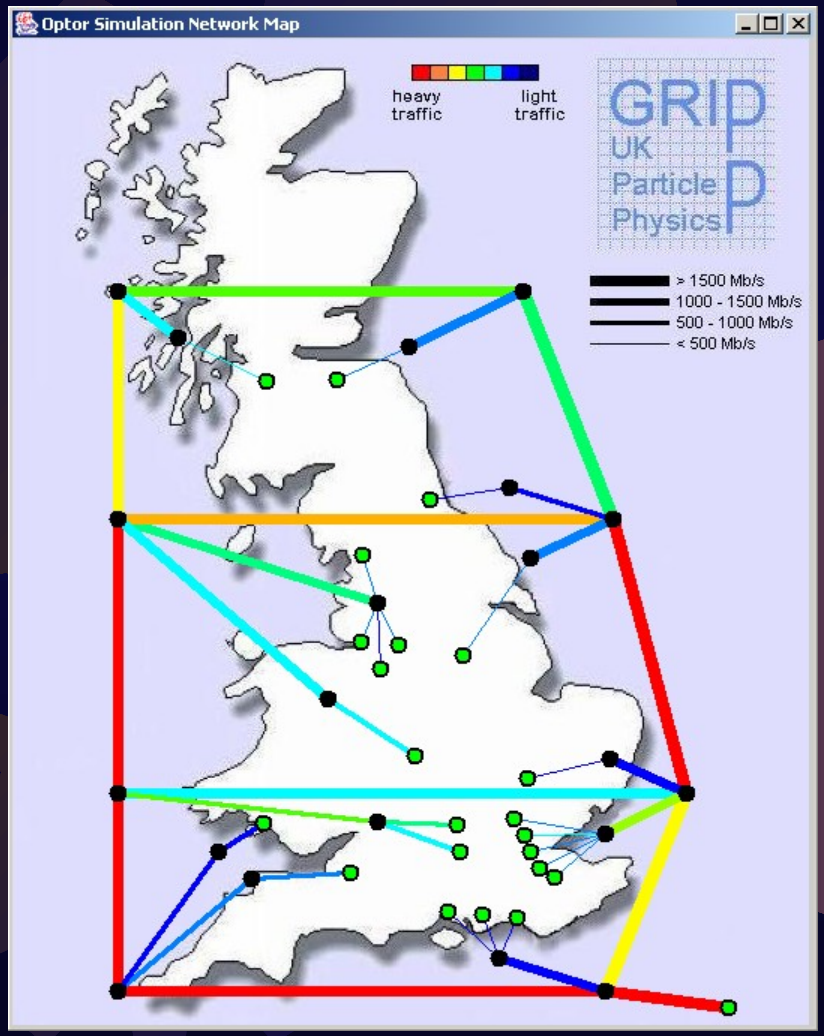
- EDG Testbed Sites
- CDF jobs, files at CERN

Modeling GridPP

Motivation:

- **Improve simulation:**
  - **Include underlying traffic**
  - **Accurate network model.**

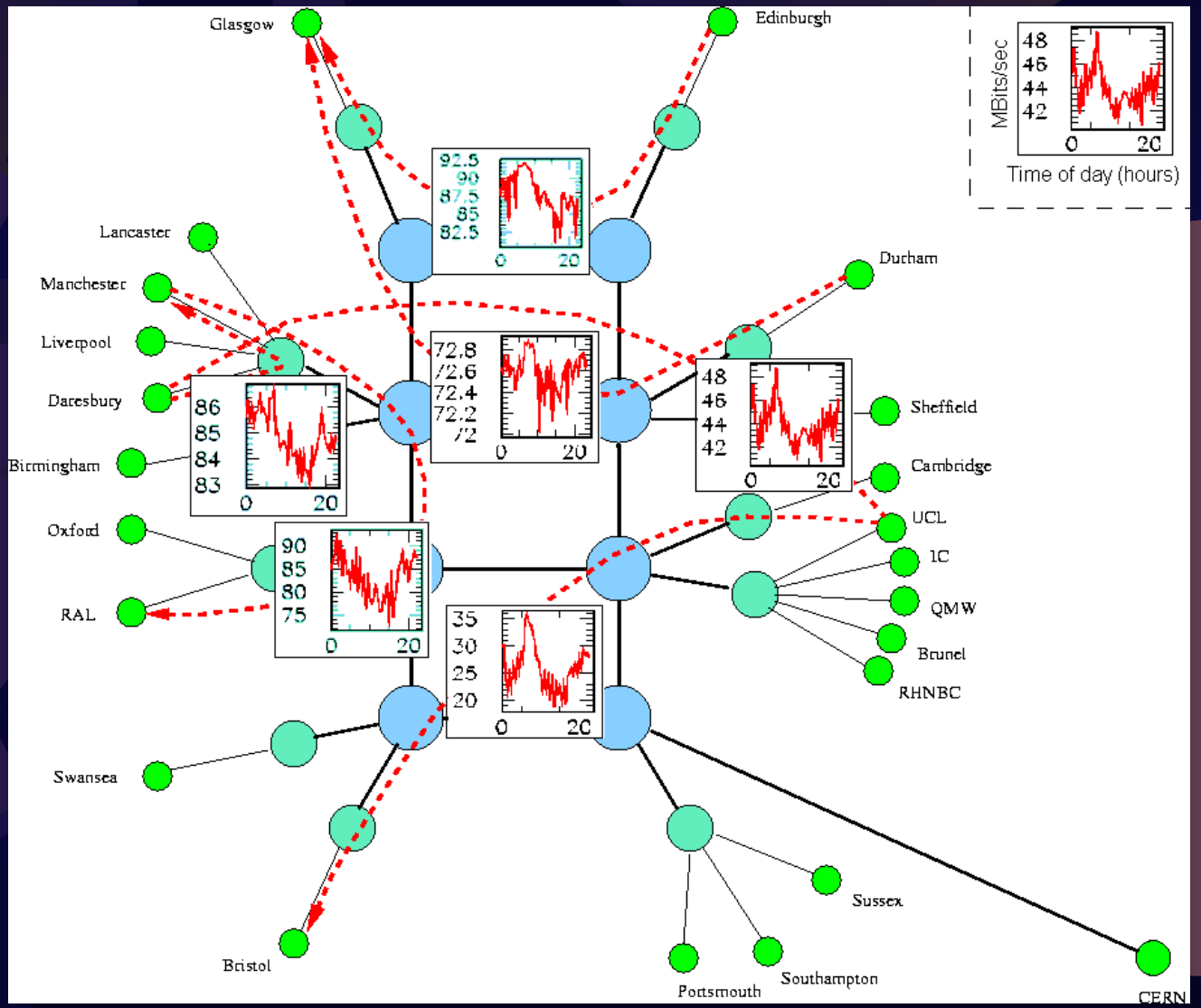
- **Known network**
- **Monitoring information (GridNM)**



Modeling GridPP

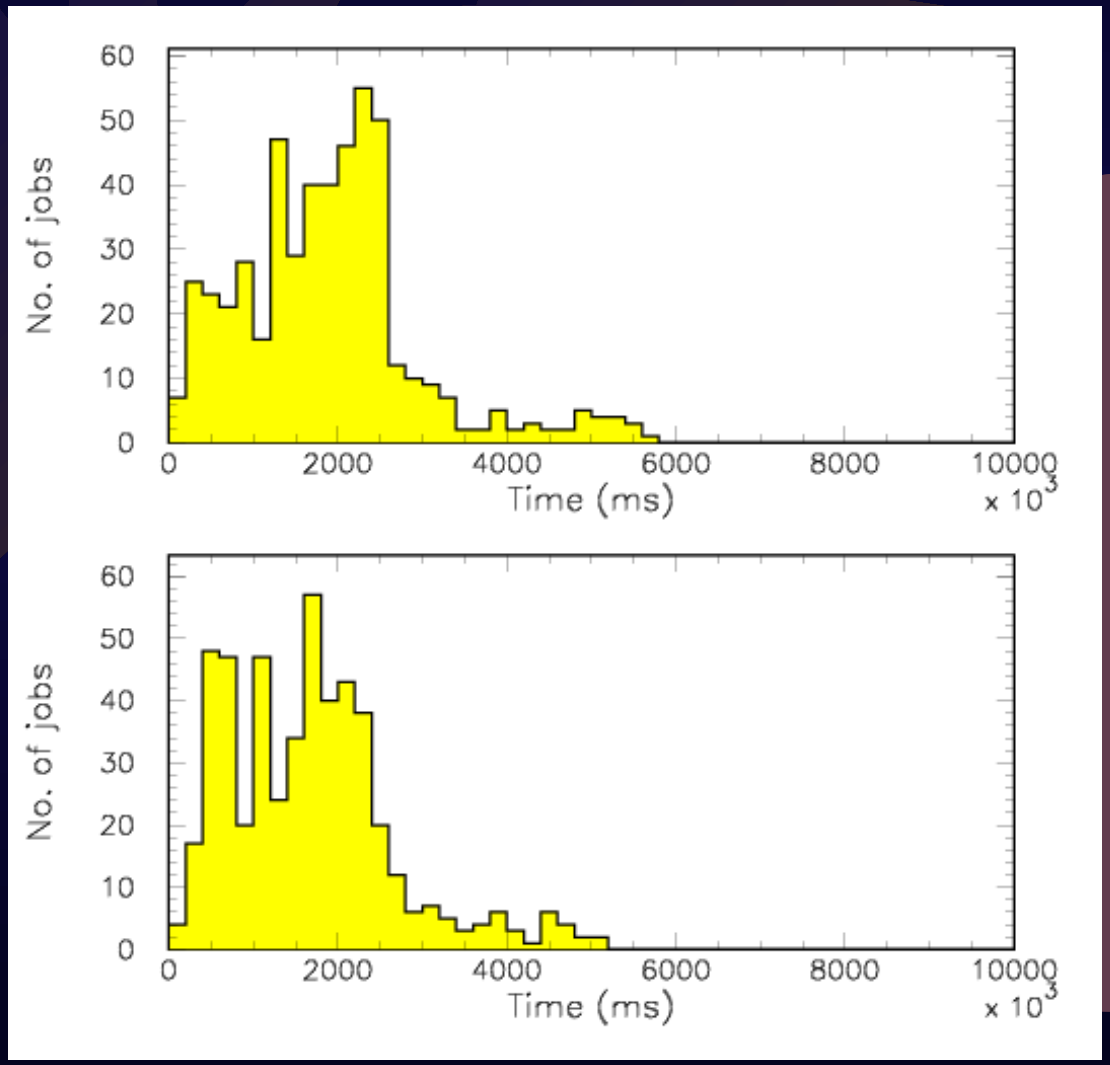
Janet Backbone with traffic

GridNM
Yee-Ting Li, UCL



Provisional Results

- **Small deviation in the mean**
- **Need more testing**
- **Simulated grid works!**



Optimisation - Outlook

- Need
  - Realistic access patterns
  - Measurements from working Grids (SAM)