



**Enabling Grids for
E-science in Europe**

www.eu-egee.org

**EGEE Kick Off Meeting
SA2 Session**

**University College Cork
Cork**

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JRA4 Overview

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Contents

- EGEE brief description
- Network Services Development (JRA4)
 - Tasks
 - Bandwidth Allocation and Reservation
 - Network Performance Monitoring
 - IPv6 uptake



EGEE Activity Areas

- **Services**
 - Deliver “**production level**” grid services (manageable, robust, resilient to failure)
- **Middleware**
 - Grid middleware re-engineering activity in support of the production services
- **Networking**
 - Proactively market Grid services to new research communities in academia and industry
 - Provide necessary education



EGEE Activities

- EGEE includes 11 activities
- Services
 - SA1: Grid Operations, Support and Management
 - SA2: Network Resource Provision
- Middleware (Joint Research)
 - JRA1: Middleware Engineering and Integration
 - JRA2: Quality Assurance
 - JRA3: Security
 - JRA4: Network Services Development
- Networking
 - NA1: Management
 - NA2: Dissemination and Outreach
 - NA3: User Training and Education
 - NA4: Application Identification and Support
 - NA5: Policy and International Cooperation

Equivalent EDG Work Packages / Groups

WP6

WP7

WP1-5 & 6

QAG

Security Group

WP7

WP12

WP11

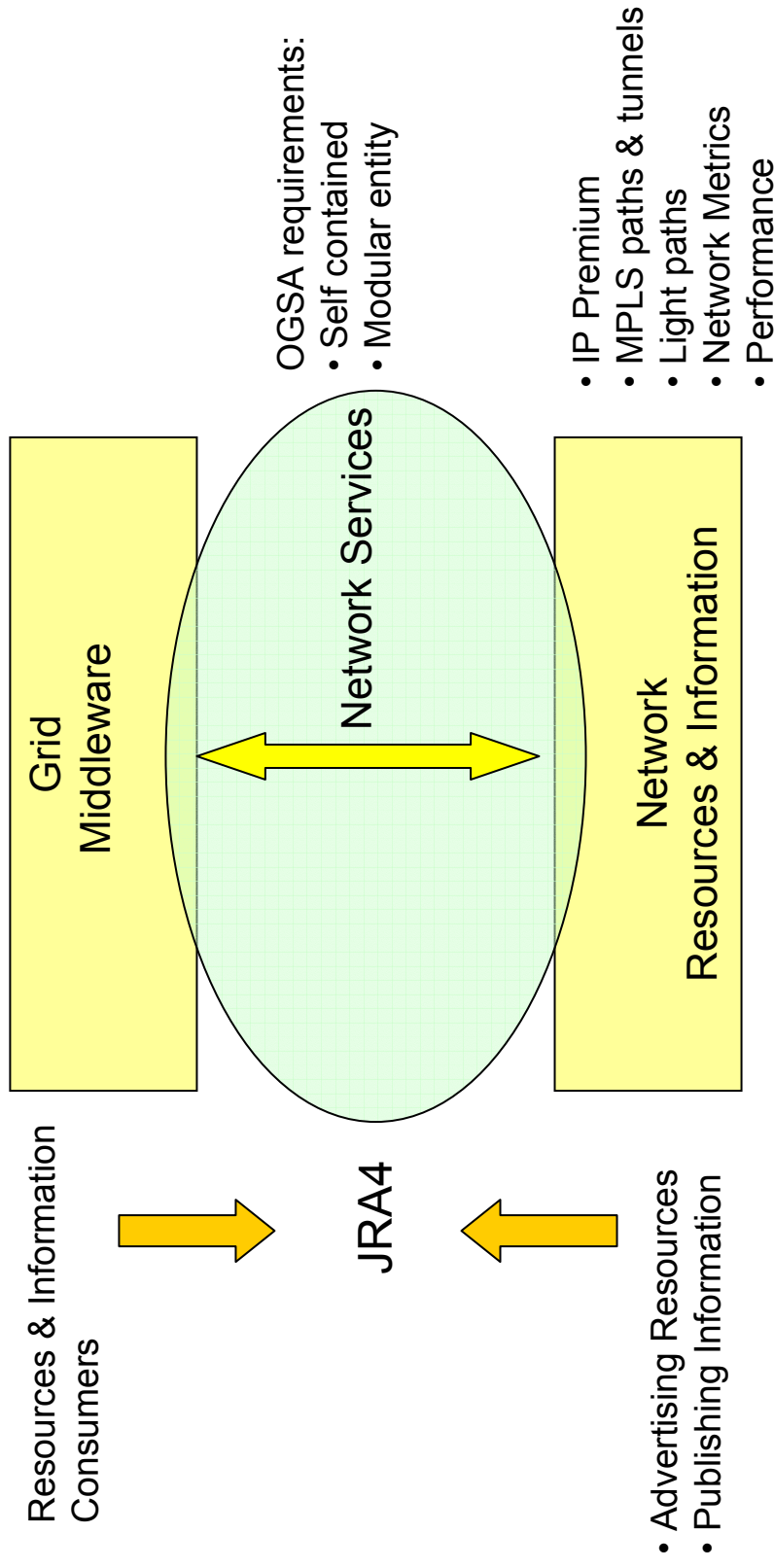
WP11

WP8-10

?

Network Service Development (JRA4) Objectives

**JRA4 will provide common interfaces between
Grid middleware and Network Resources**

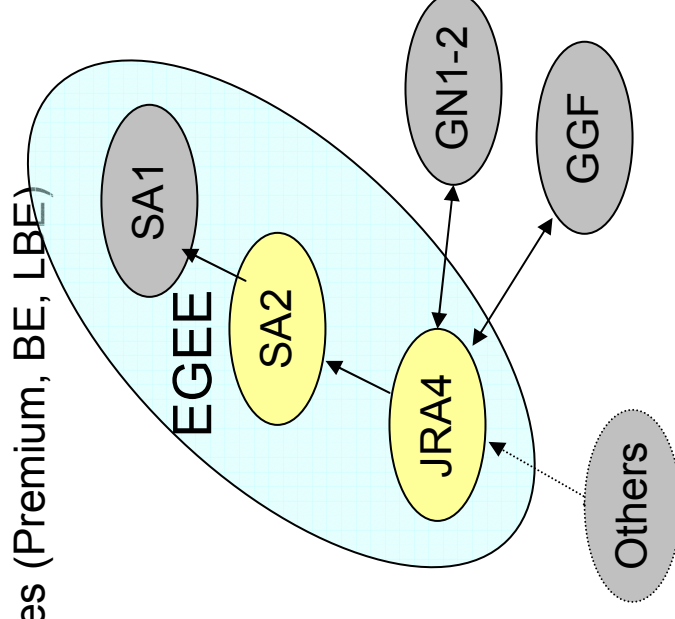


JRA4 Tasks and Context

- **Main sub-activities:**
 - Bandwidth Allocation and Reservation
 - Network Performance Monitoring and Diagnostic tools
 - and, also IPv6 uptake
- **DANTE already deploying basic infrastructure in GEANT (current GN1 and the coming GN2 projects):**
 - Introduction of Layer 3 differentiated services (Premium, BE, LBE)
 - Instrumentation for network measurement

- **JRA4 Partners**

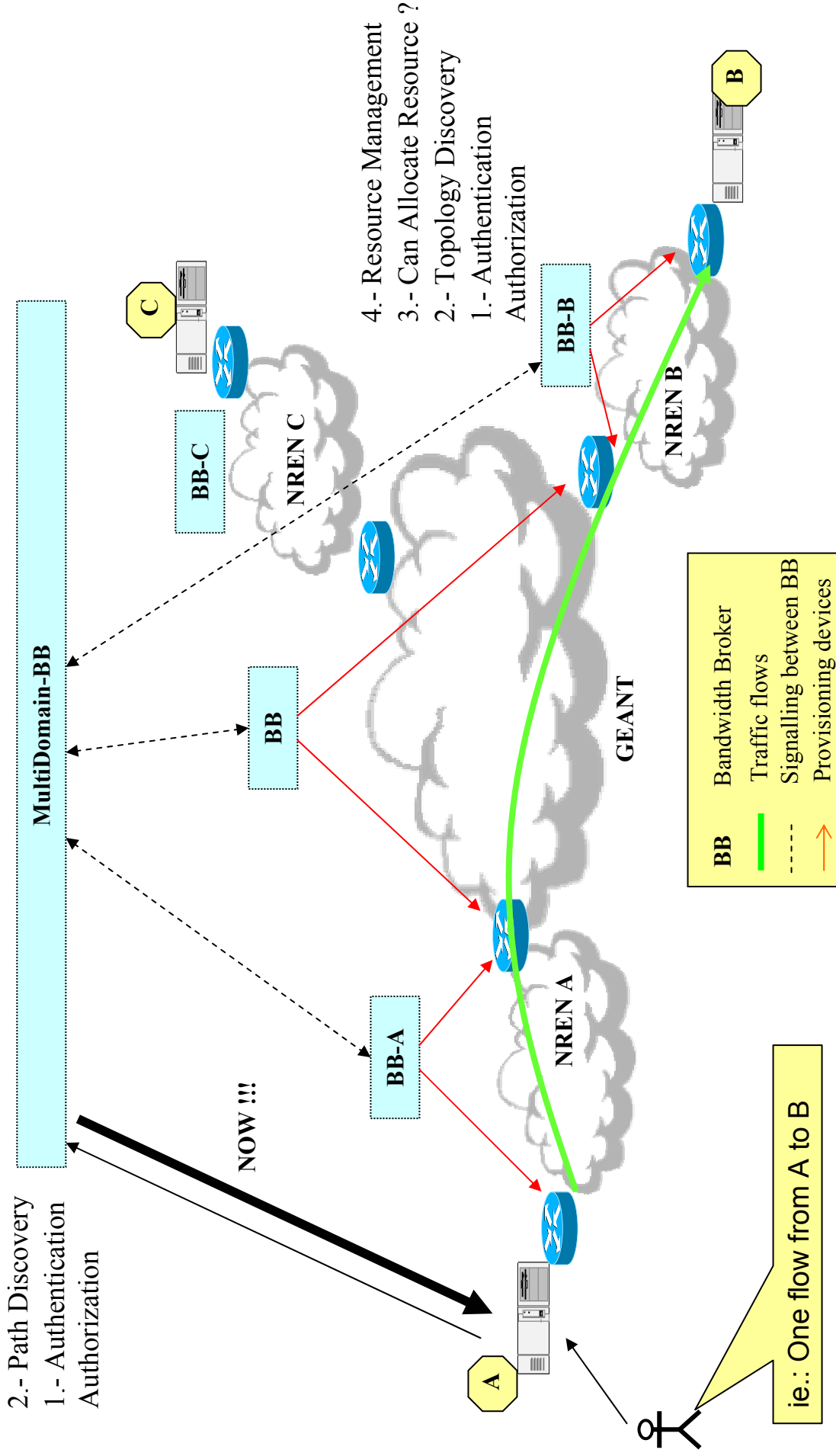
- UCL
- CNRS / UREC
- DANTE
- DFN
- GARR



Bandwidth Allocation & Reservation

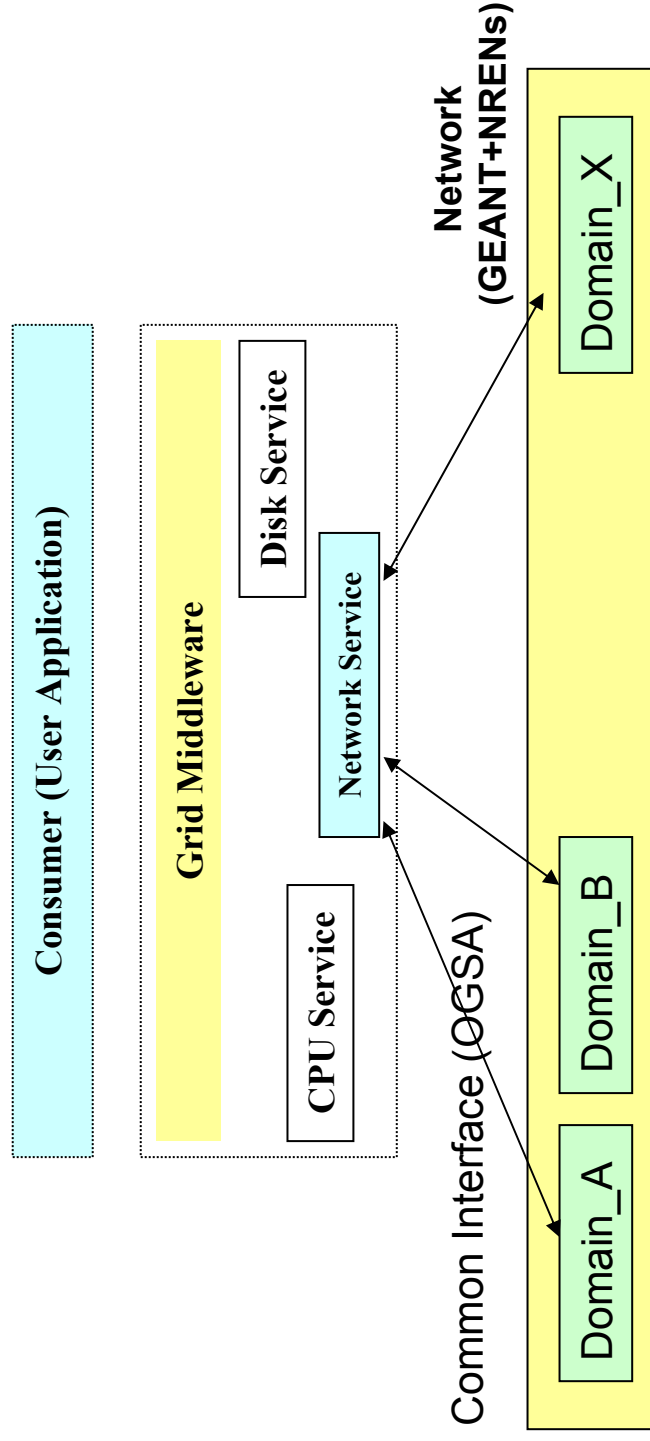
- Network Resources:
 - Layer 3 - diffserv based traffic: IP Premium, Scavenger, ...
 - Layer 2 : VLAN, MPLS
 - Layer 1 : lightpaths
- Allocating network resources :
 - immediate
 - advance
- Features:
 - Multiple domains
 - Users as part of Virtual Organizations
 - Authorization, Authentication and Accounting of end users
 - Policy derived from SLA (input from SA2 – Geant, NRENs)

Bandwidth Allocation & Reservation



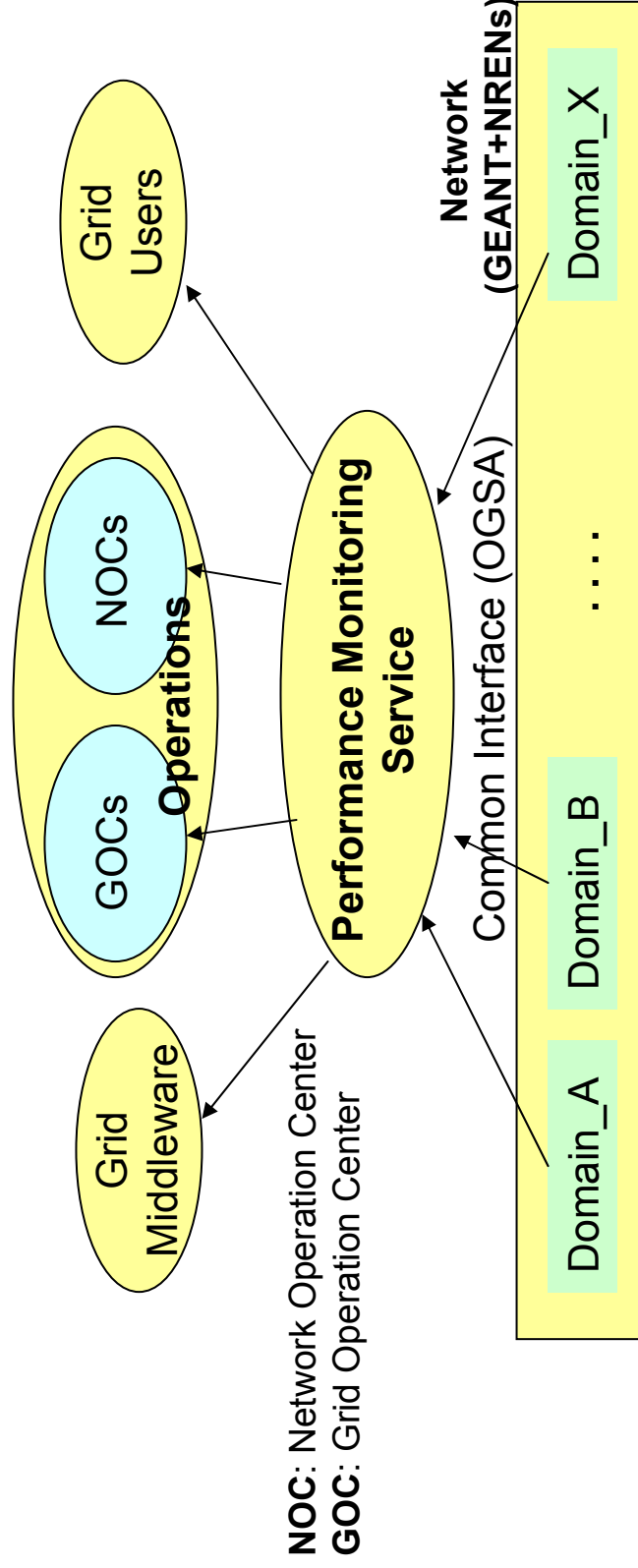
Bandwidth Allocation & Reservation

- Any other Alternative ?
- Whatever we do, it needs to be integrated in the Generic Middleware architecture.



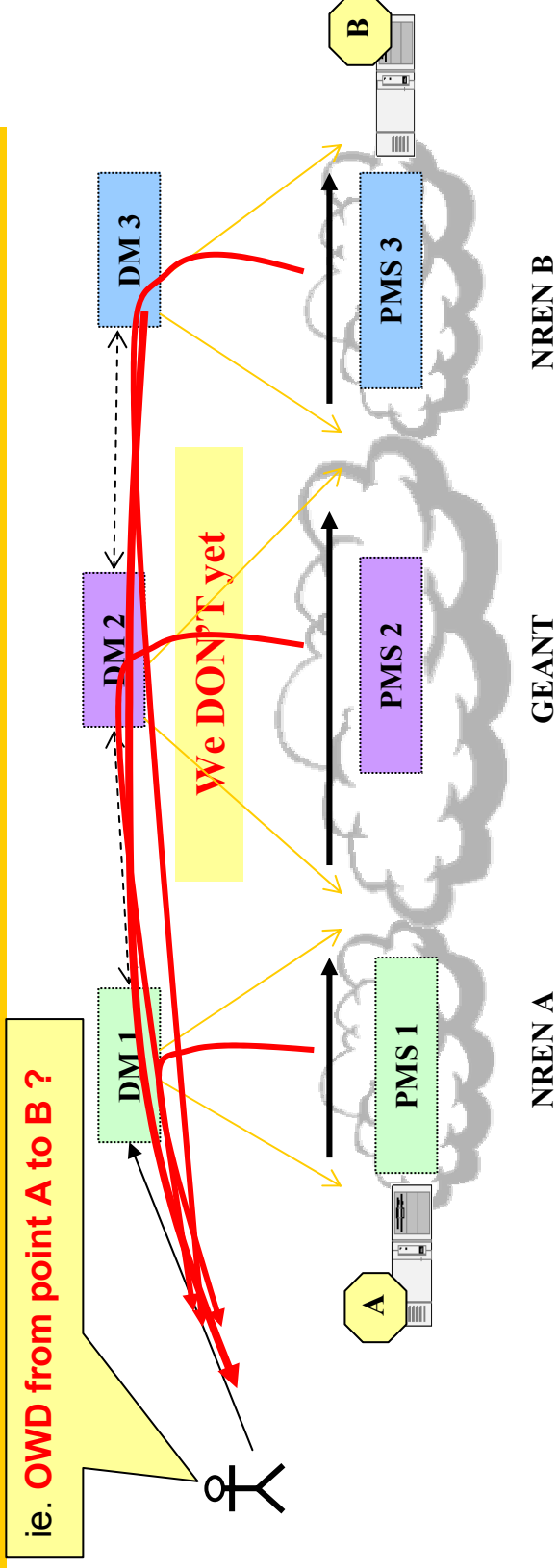
Network Performance Monitoring

- **Grid Performance** closely linked to **Network Performance**
- **Network Performance?**, what for? :
 - Problem diagnostic and rectification
 - Facilitate resources allocation
 - Performance monitoring and SLA adherence



NOC: Network Operation Center
GOC: Grid Operation Center

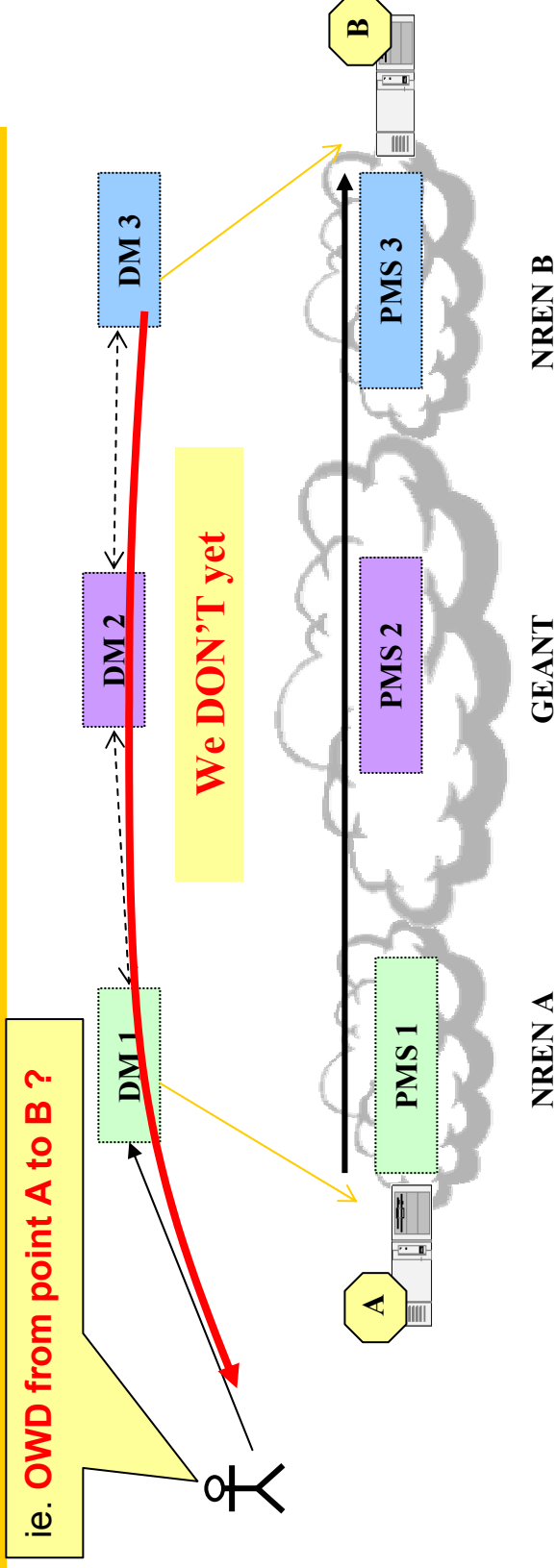
Net. Perf. Monitoring: Use case example



$$\text{OWD} = \text{OWD1} + \text{OWD2} + \text{OWD3}$$

- PMSx and DMx
 - Are independent implementation for the measurements
- Features
 - Multiple domains, AAA, OGSA/OGSI

Net. Perf. Monitoring: Use case example



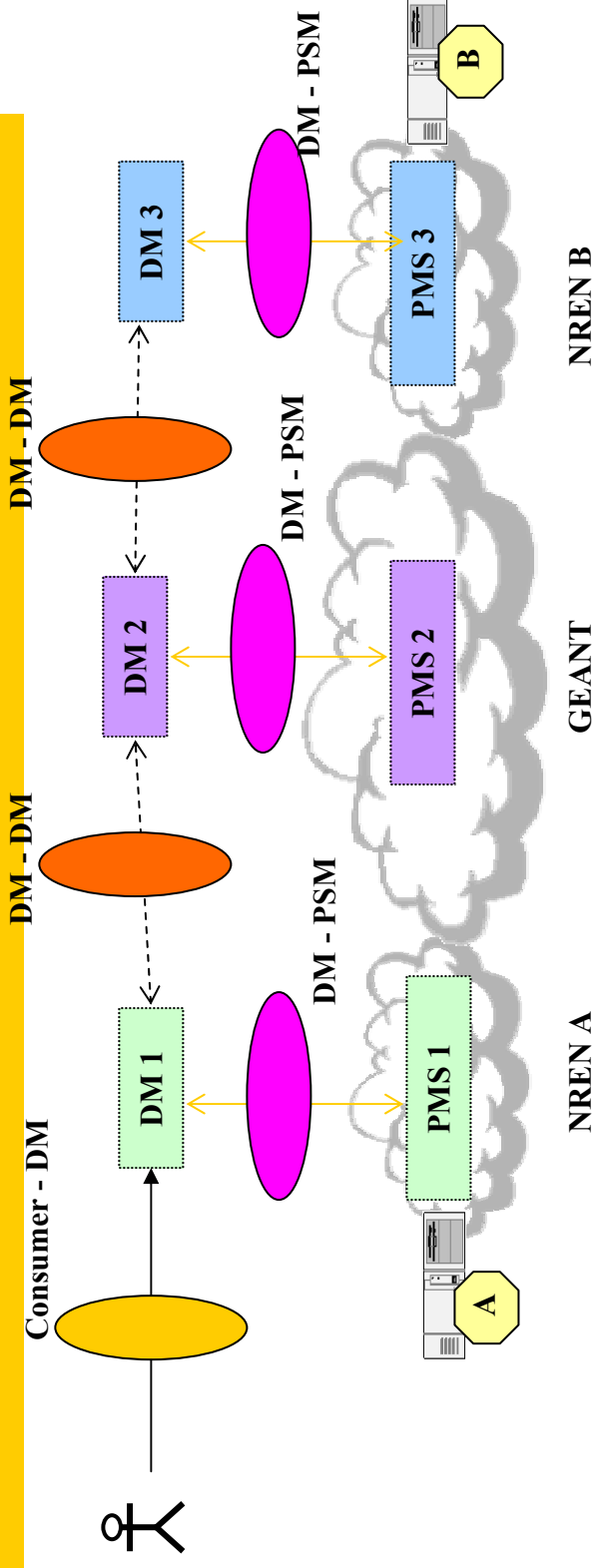
$$OWD=OWD1+OWD2+OWD3$$

$$OWD=OWD_{A-B}$$

- PMSx and DMx
 - Are independent implementation for measurement
- Features
 - Multiple domains, AAA, OGSA/OGSI

DM	Domain Manager
PMS	Performance Monitoring System
-----	Signalling between DM
→	Request of Measurement

EGEE: Focus on the Interfaces



- Consumer - DM
 - Consumers such as end-user, operations, middleware
- DM - DM
 - Supporting the multi domain signalling and other services like topology discovery
- DM - PSM
 - Control of the end monitoring resources

DM Domain Manager
PMS Performance Monitoring System

IPv6 Uptake

Study of the advantages of using IPv6 in Grid context:

- DANTE deploying IPv6 (already started)
- IPv6 is effective if deployed in all domains

The report will cover:

- Study of features of IPv6, highlighting the ones of interest for Grids
- Availability of IPv6 in NRENs and access networks
- EGEE internal awareness of IPv6

Also:

- Collaboration with 6NET
- Possibility of building a testbed, needs to be agreed

Thank you

<http://www.eu-egee.org>

<http://egee-jra4.web.cern.ch/EGEE-JRA4>