

A monitoring architecture for Control Grids

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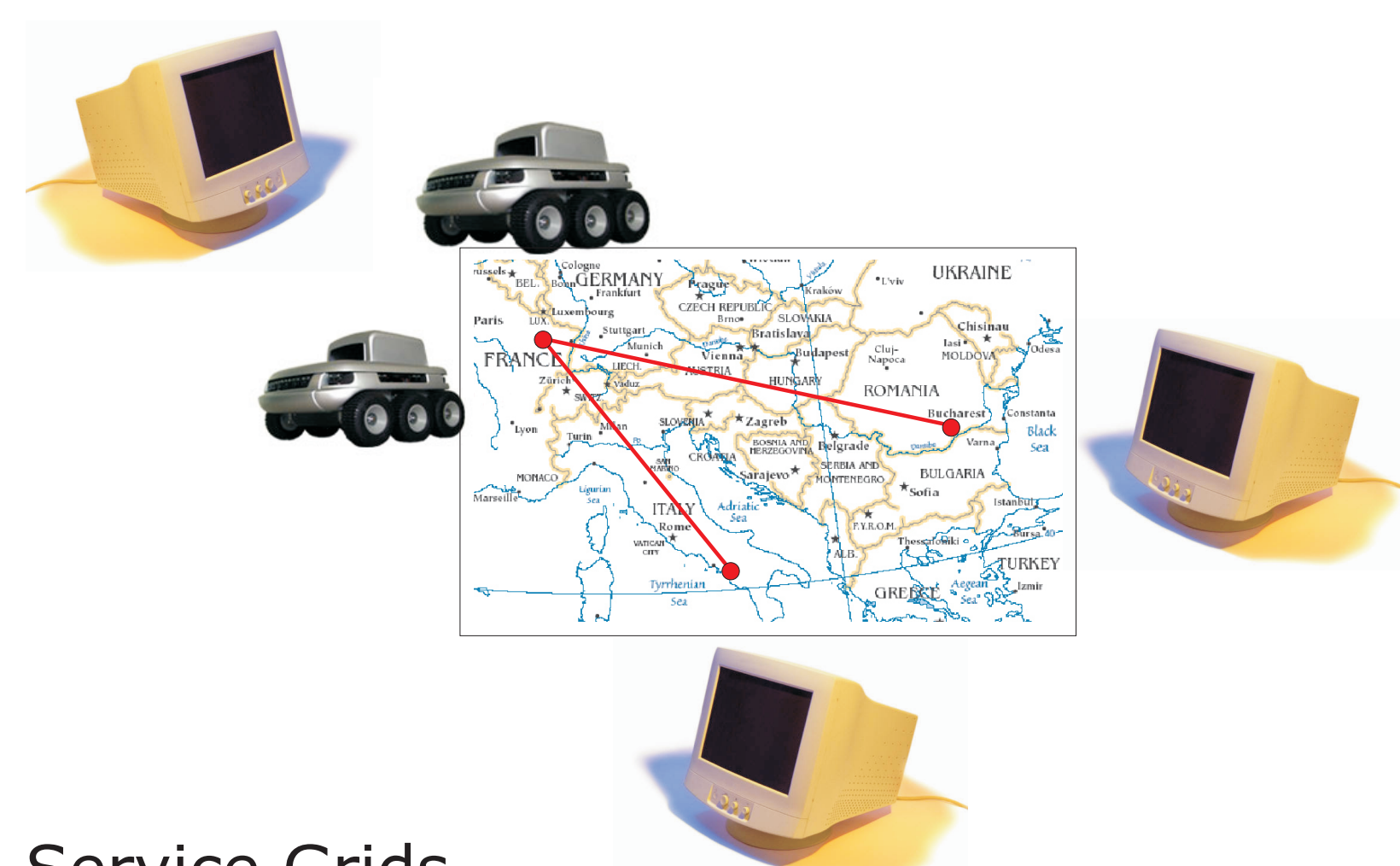
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Introduction

Monitoring systems are nowadays ubiquitous in complex environments, such as Grids. Their use is fundamental for performance evaluation, problem spotting, advanced debugging and per-use accounting. Building such systems raises challenging issues, like data gathering from Grid components, low intrusiveness, ease of use, adaptive data visualization, fault-tolerance and self-maintenance.

How well does this system work?

Control Grids



Service Grids
Standardize remote resources control
Interdisciplinary projects

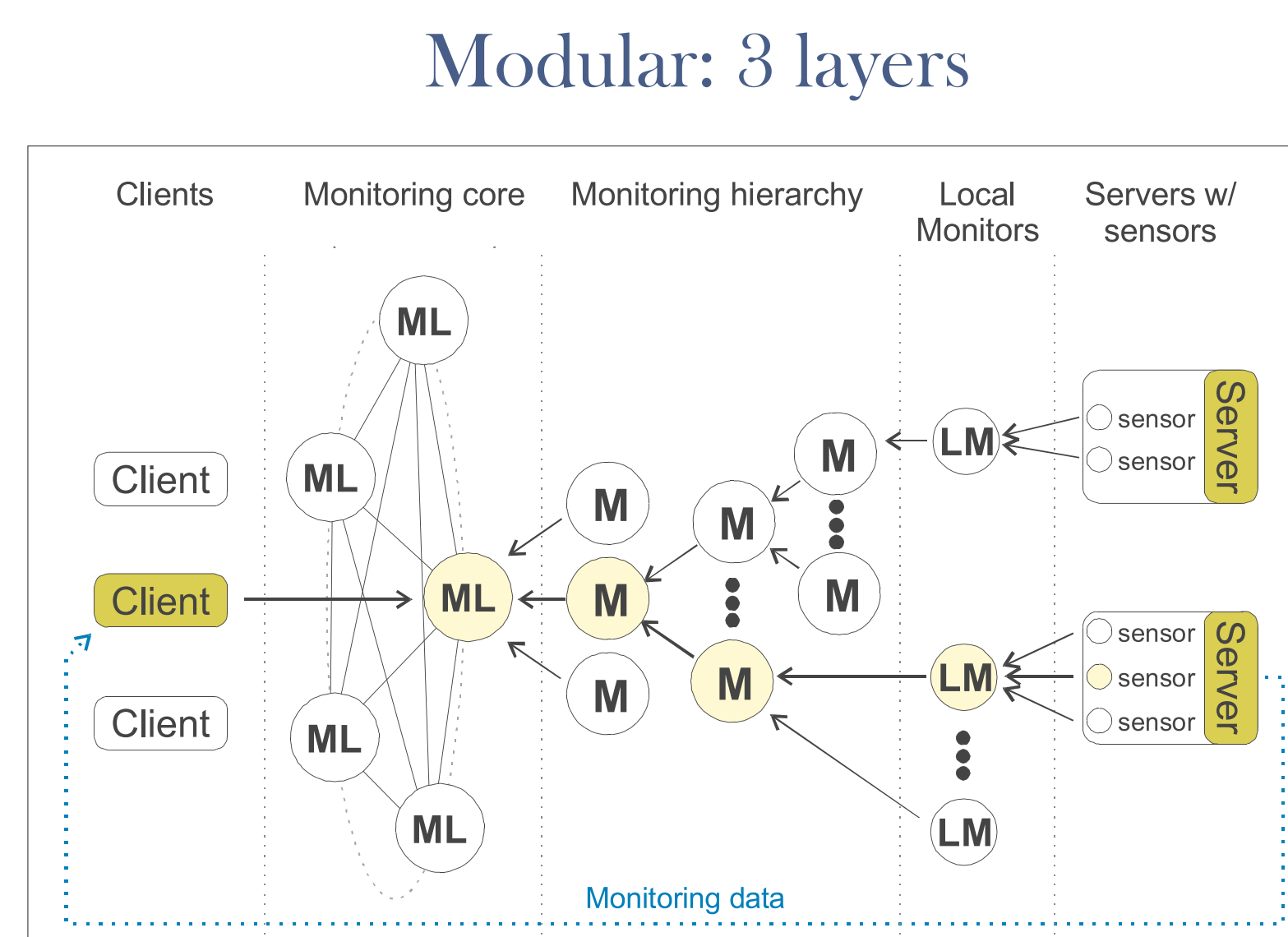
Problem Statement

We need a monitoring system for Control Grids

- Gather data from all Grid components
Network, hosts and devices, middleware, applications
- Deal with large bursts of information
Systems used periodically
- Perform high-speed sampling
Many parameters
At least 10 samples/second
- Keep the system lowly-intrusive
Perturbations damaging

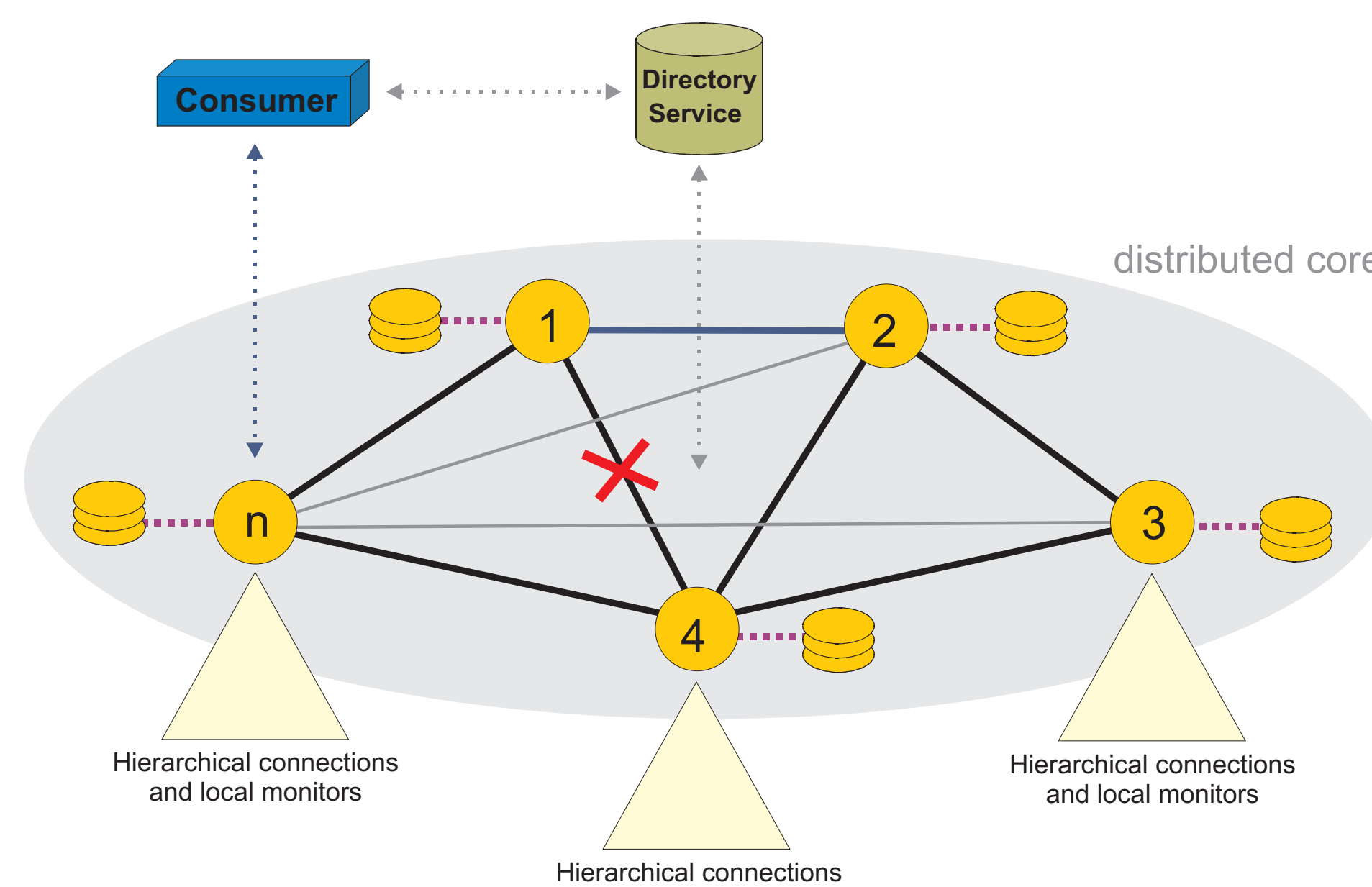


The monitoring architecture



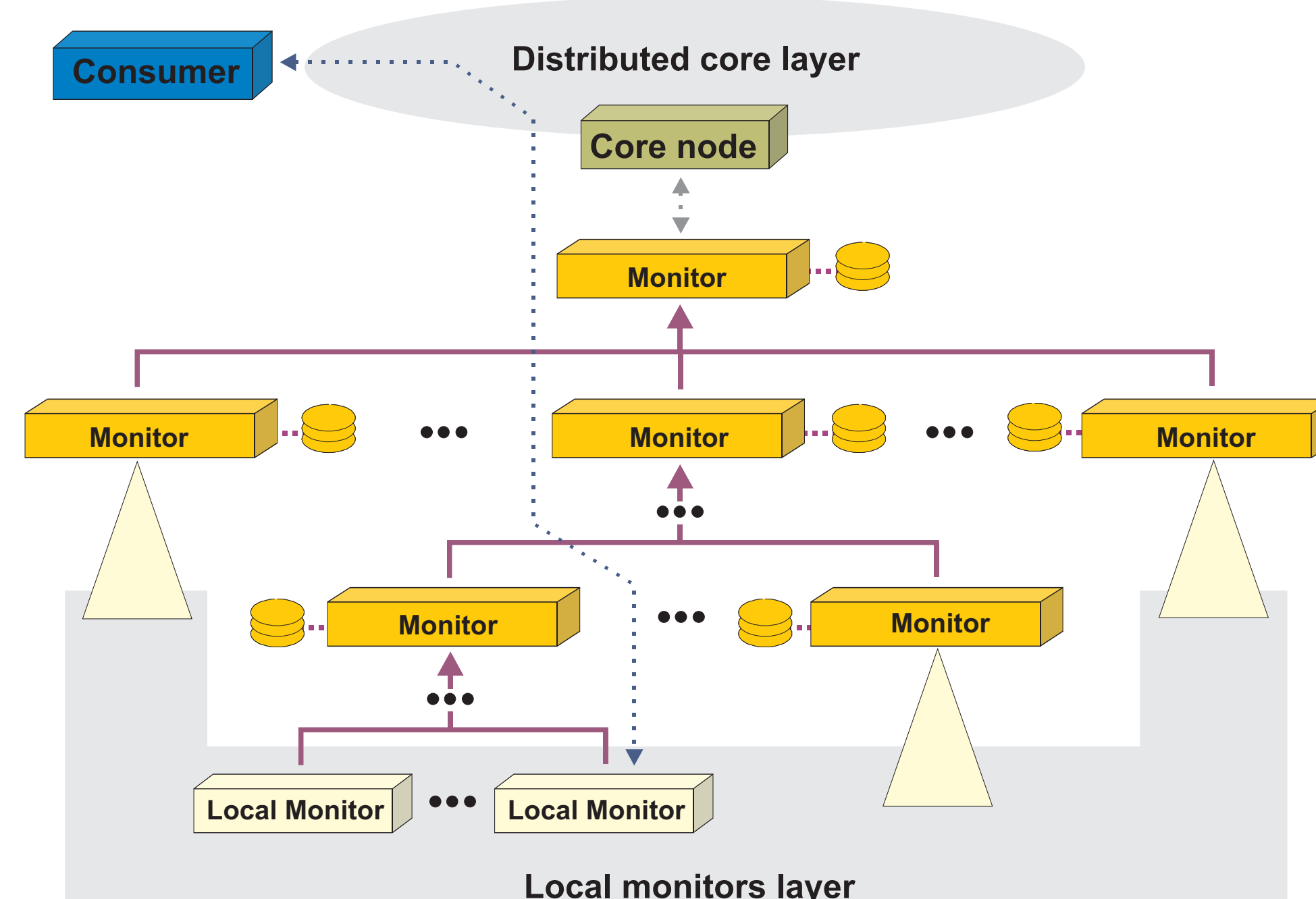
Toytile: a layered monitoring architecture for Control Grids

Layer 1 Distributed core layer



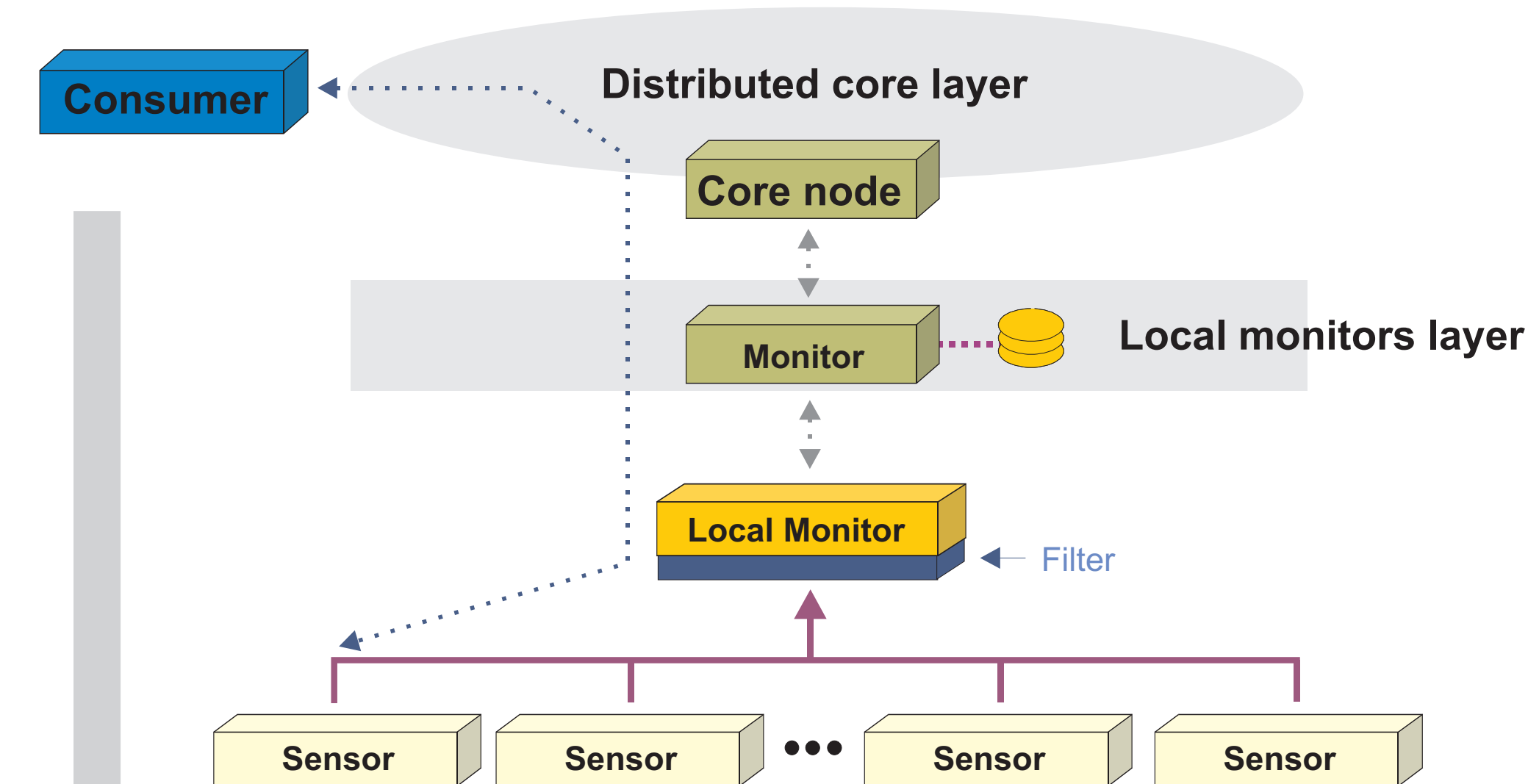
a complex core with near cross-bar connections between nodes providing high-level monitoring services to the user

Layer 2 Hierarchical connections



a fairly light hierarchical structure that connects the local monitors to the distributed core, through data federation and piping

Layer 3 Local monitors



A very light and lowly-intrusive set of monitors (not just sensors) that gather data from locally available sensors and perform simple filtering on it.

To make things work...

- Need (open-source) tools to build upon
- Towards implementing
 - Ganglia, SNMP
 - MonALISA, Hourglass?

Lots of ground still to cover!

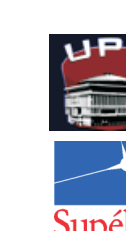
Research issues

- Architecture-related
 - How to connect core nodes?
 - How to ensure fault-tolerance?
 - How to make the system Usable/Maintenable?
- Data transfer related
 - How to ensure data consistency?
 - How to replicate data?
 - How to query for data?
 - How to cache the data?

Interesting and promising!

For further information

Please contact Aiosup@cs.pub.ro or Stephane.Vialle@supelec.fr.



More information on this and related projects at: <http://www.metz.supelec.fr/~ersidp/>

This poster is also available at: <http://prof.cs.pub.ro/~aiosup/egc05-poster.pdf>