Beyond Hybrid Networking

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Trends

- We have made baby-steps on the path to optical networking
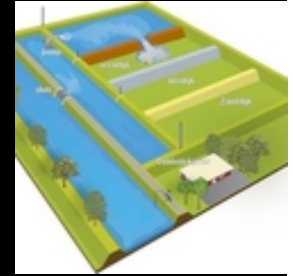 - GLIF & SN6
  - Still many mails and phone calls to set up paths


- See several trends:

  - More applications need better predictable behavior

  - Lambda's get fatter and cheaper

  - Photonic technology cheap per bandwidth

  - Embedded computation capacity increasing

  - Ethernet is getting circuit properties (PBT)

 - Latency and high bandwidth congestion avoidance conflict
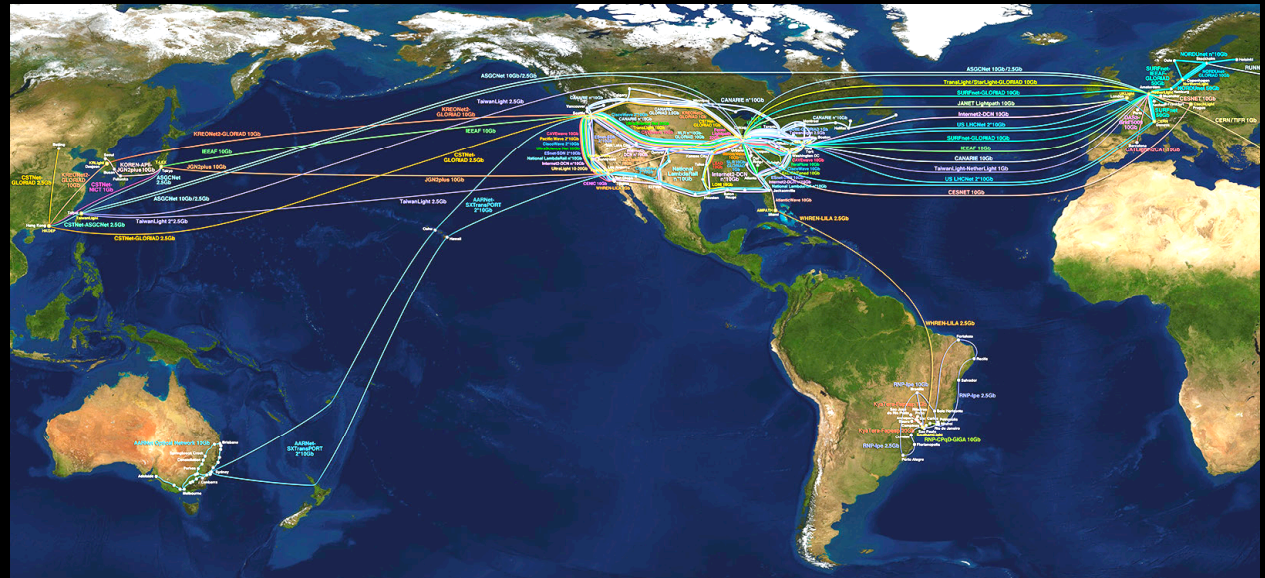
Flows

- Many small streams (sensor grids, ijkdijk)
  - programmable networks, capability networking
- Few big flows (LHC, eVLBI, LOFAR)
  - photonic nets, capacity networking
- SuperGrids (e.g. Cosmogrid)
  - capability & capacity processing
- TeraApps programming model
  - TFlops   ->   MPI / Globus
  - TBytes   ->   OGSA/DAIS
  - TPixels   ->   SAGE
  - TSensors   ->   LOFAR, LHC, ...
  - Tbit/s   ->   ?
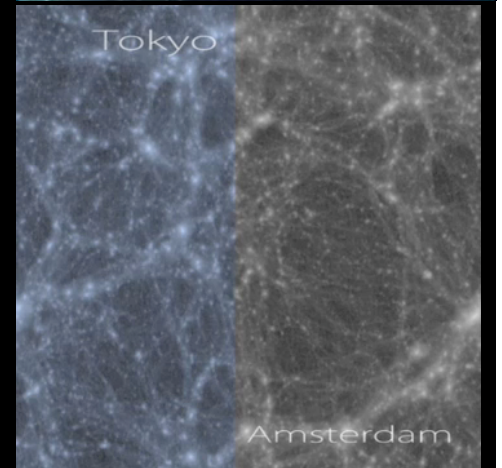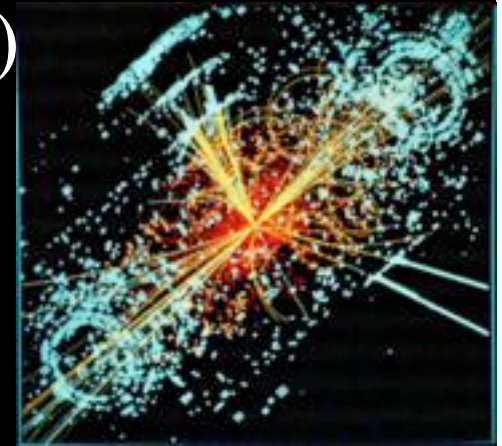
"I want" approach

Application: find video containing x,
then trans-code to it view on Tiled Display

RDF/CG

RDF/CG

RDF/CG

RDF/ST

RDF/VIZ

RDF/NDL

RDF/NDL

RDF/CPU

content

content
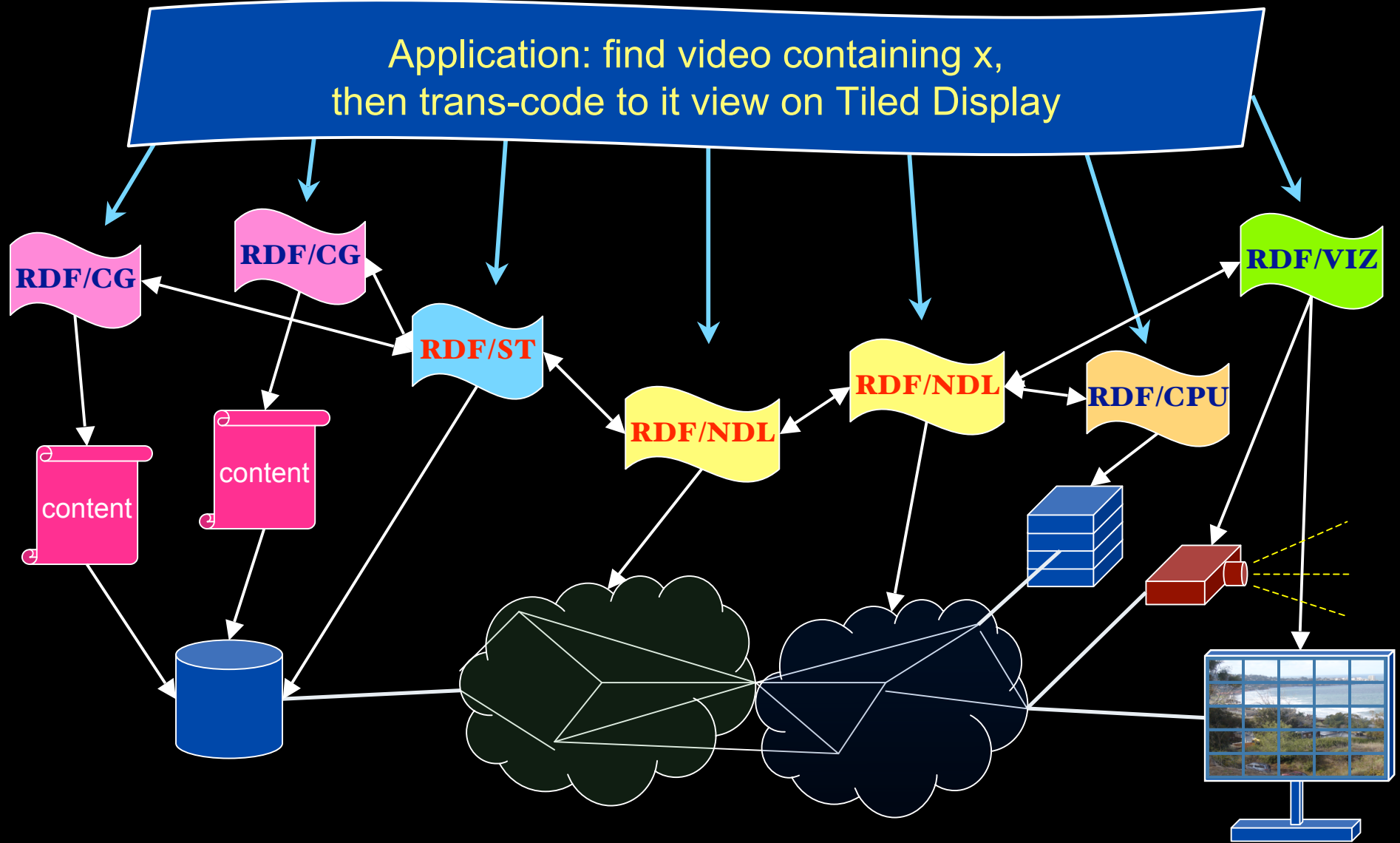
Security Infrastructure &
Infrastructure Security

- Distributed Authorization & Authentication & Accounting
- Privacy (identity theft)
- Data integrity & confidentiality
  - eHealth (medical dossier, imaging)
  - Industry (competitive advantage)
  - also in e Science! (the toothbrush example)
- Emergency response and prevention (eCERT)
- Safe infrastructure (embedded chips)

Questions ?