Logistical Networking for Energy Sciences

Presented by

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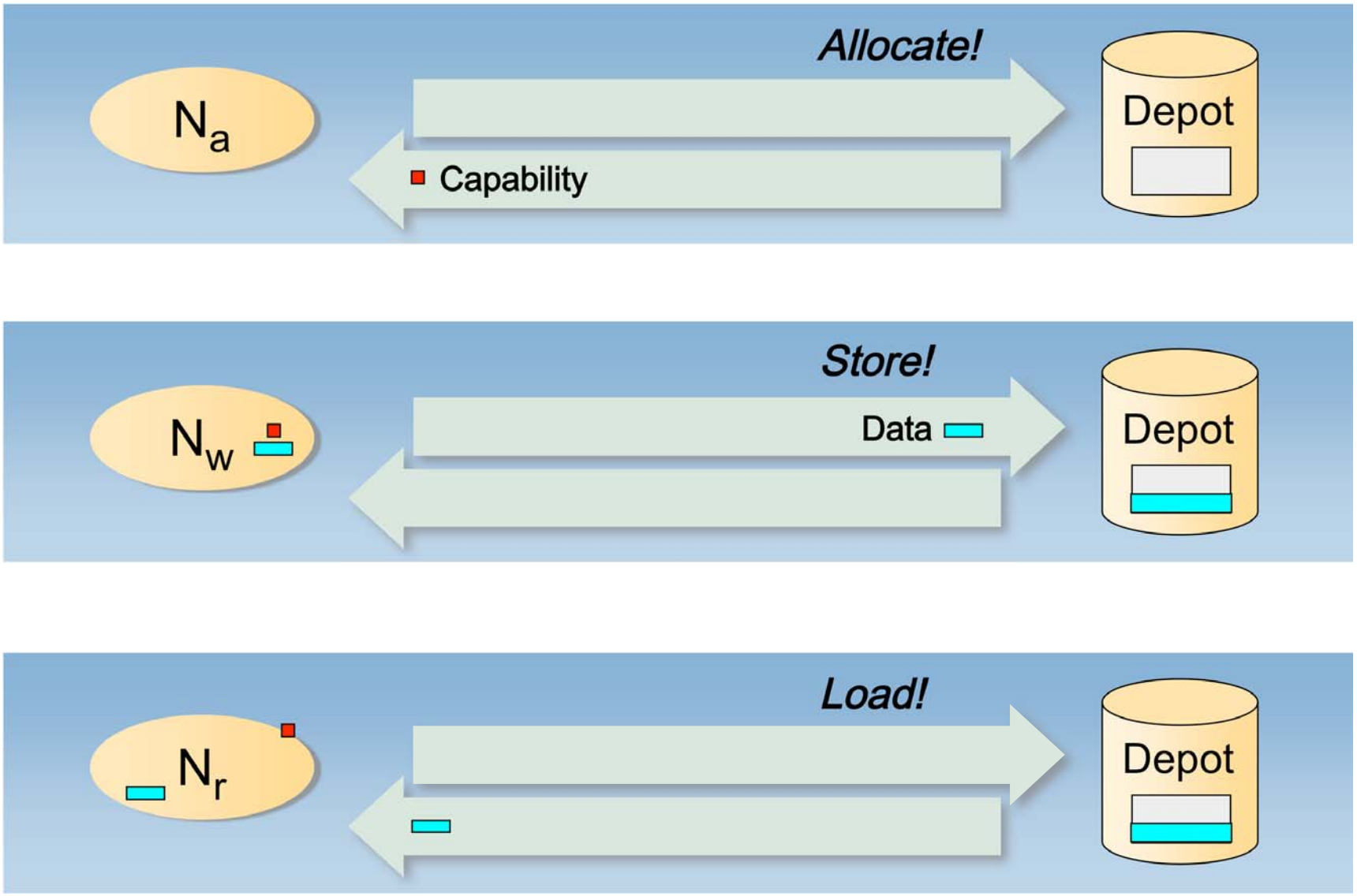
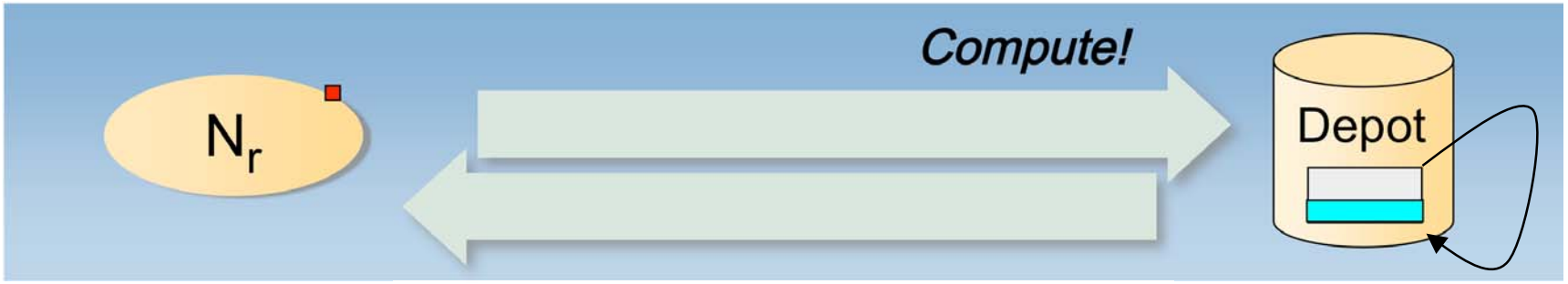
The Internet Backplane Protocol

- A common service for state management in a shared network.
- A basis for asynchronous communication.
- Scalability comes from weak assumptions:
  - Maximum size and duration of allocation.
  - A highly generic, “best effort” service.
  - “A weak network version of malloc.”
- Robust services are built on top in *an end-to-end manner* !
- The goal is scalability analogous to the Internet.

Internet Backplane Protocol

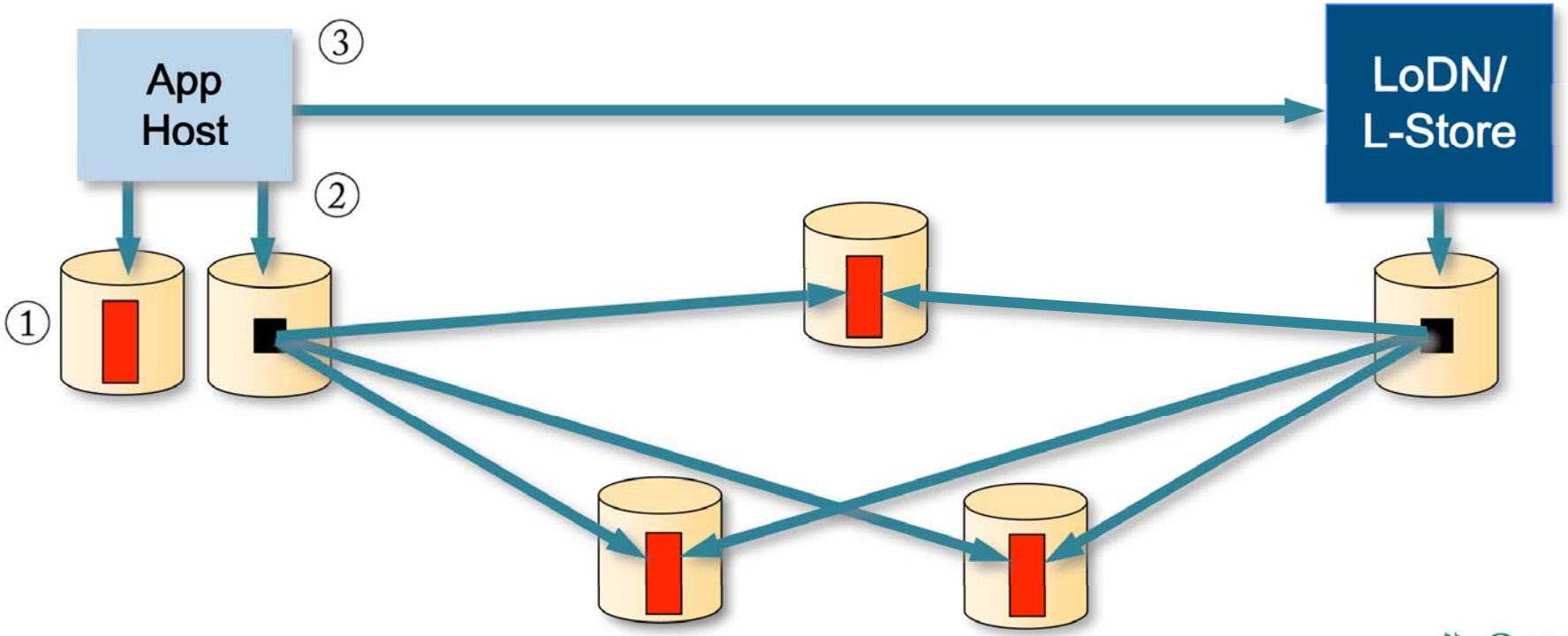


Internet Backplane Protocol



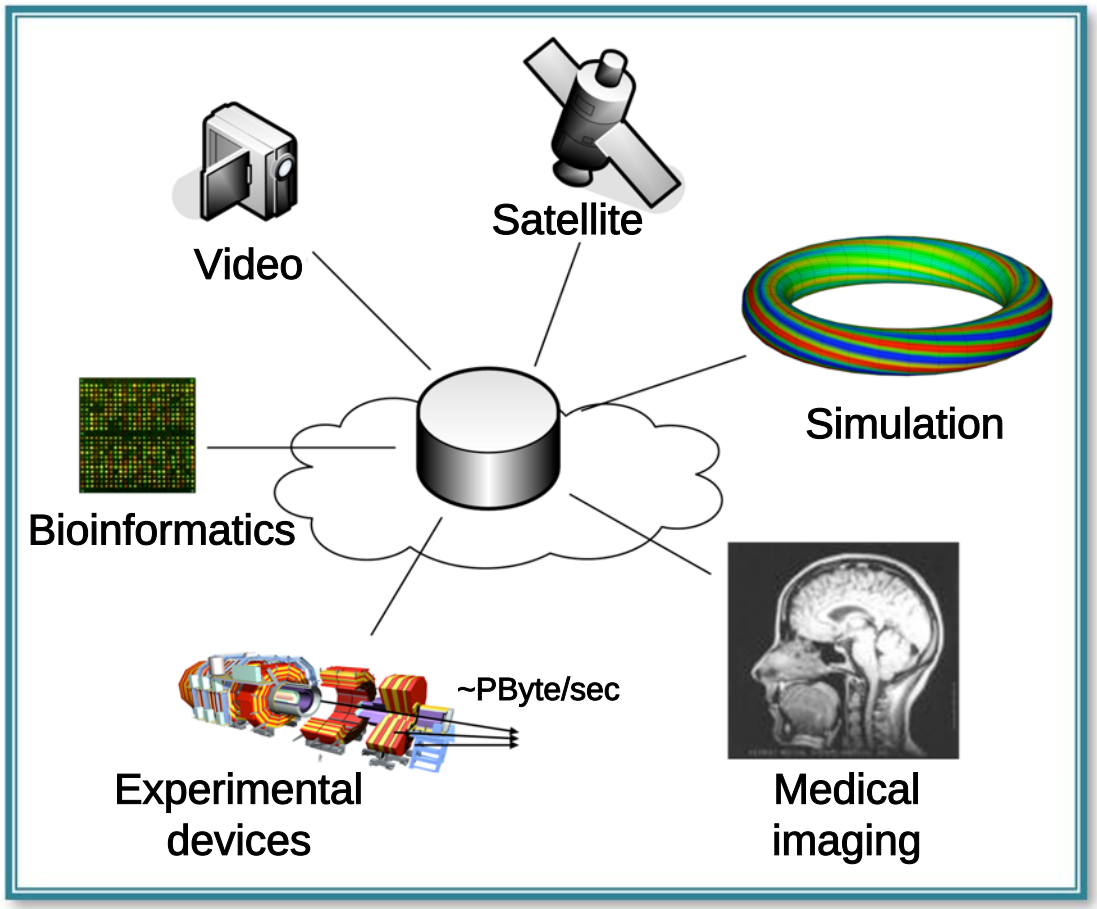
Three kinds of files

- Files stored locally (1)
  - Attached disk (direct, LAN or storage network)
- Files represented as exNodes
  - exNodes stored locally (2)
  - exNodes stored in LoDN directory (3)



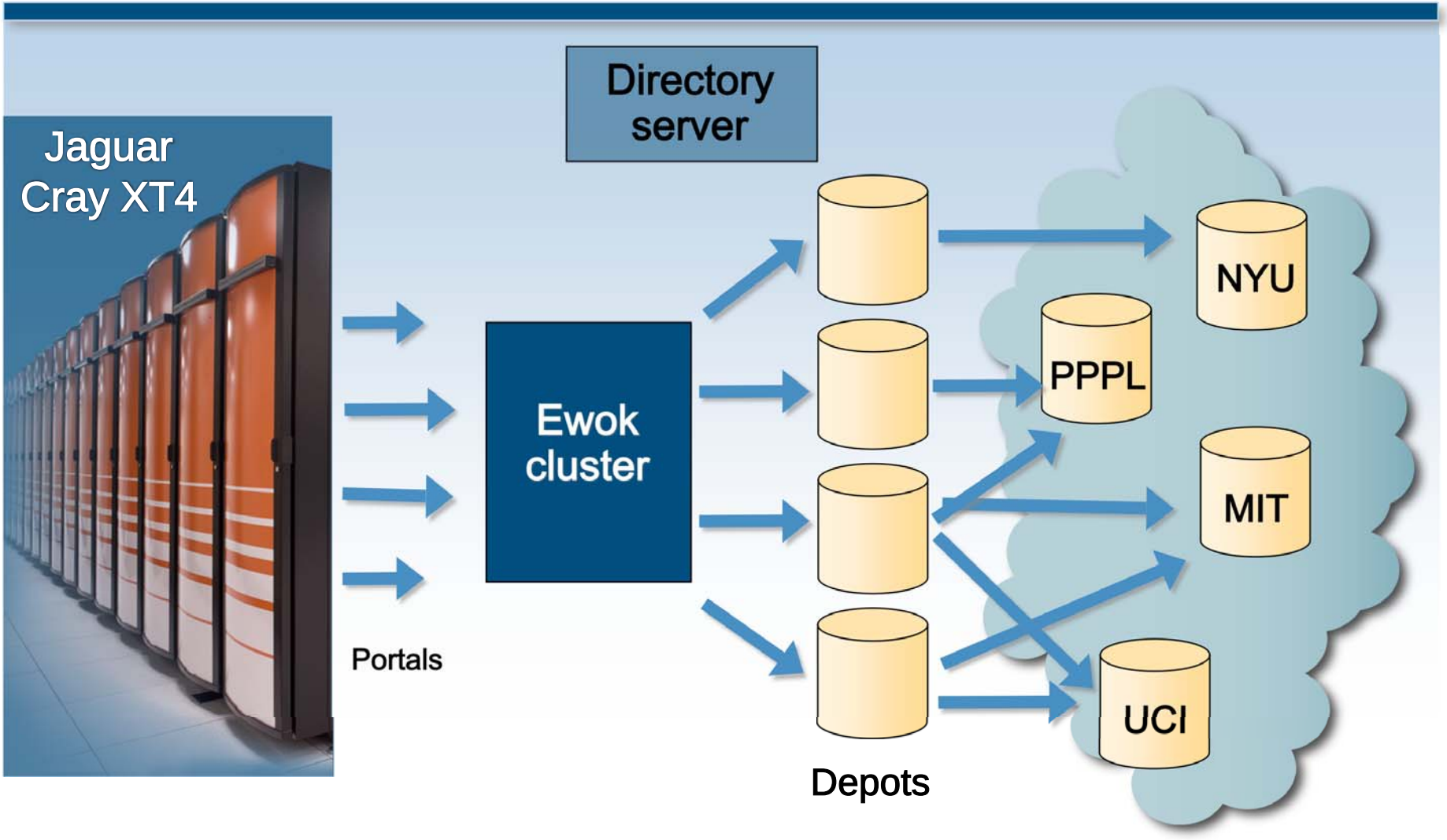
Logistical networking provides a "bits are bits" infrastructure

- Standardize on what we have an adequate common model for
  - Storage/buffer management
  - Coarse-grained data transfer
- Leave everything else to higher layers
  - End-to-end services: checksums, encryption, error encoding, etc.
  - Enable autonomy in wide area service creation: security, resource allocation, QoS guarantees…
- Gain the benefits of interoperability today!

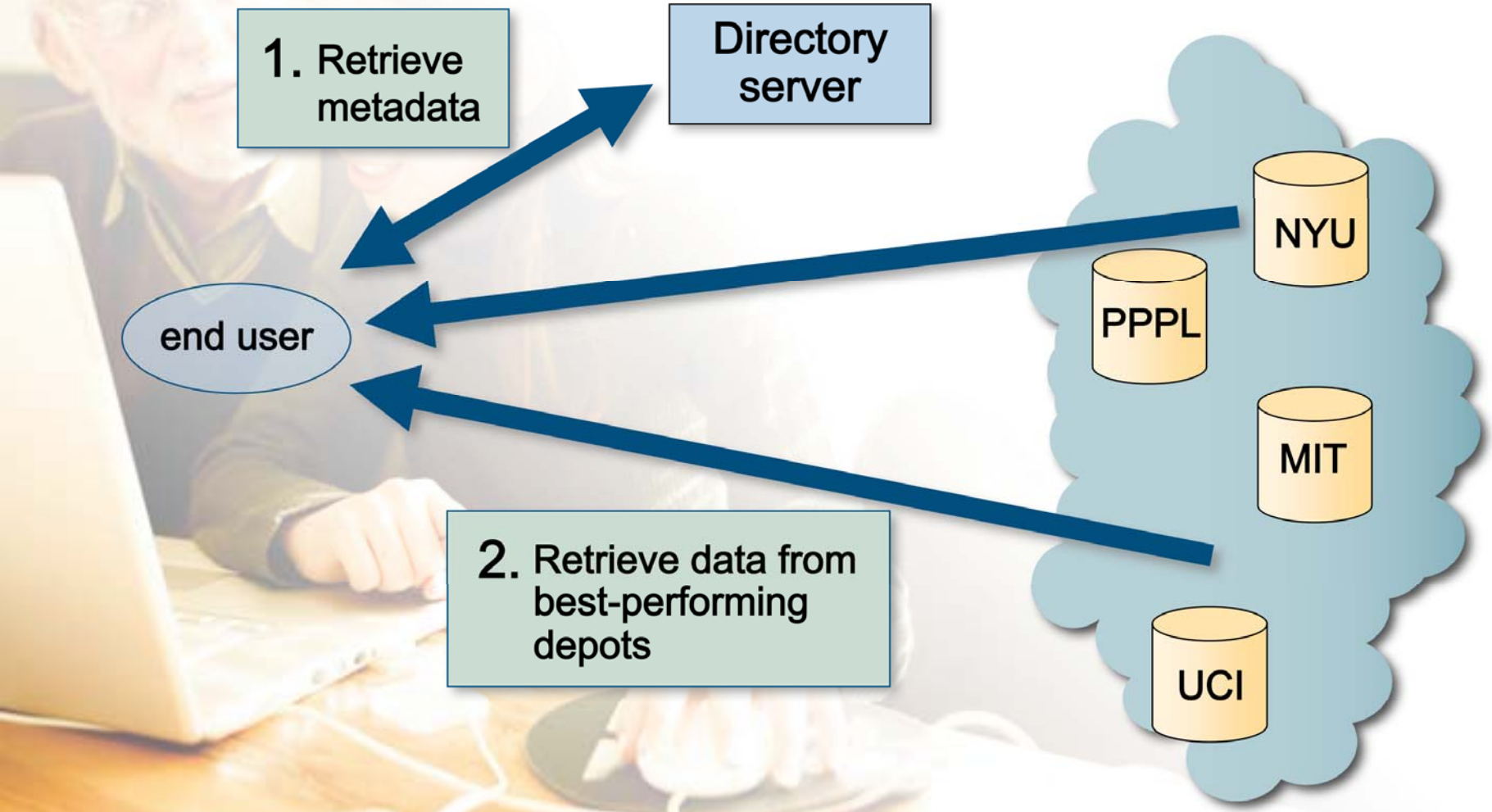


One infrastructure serves all

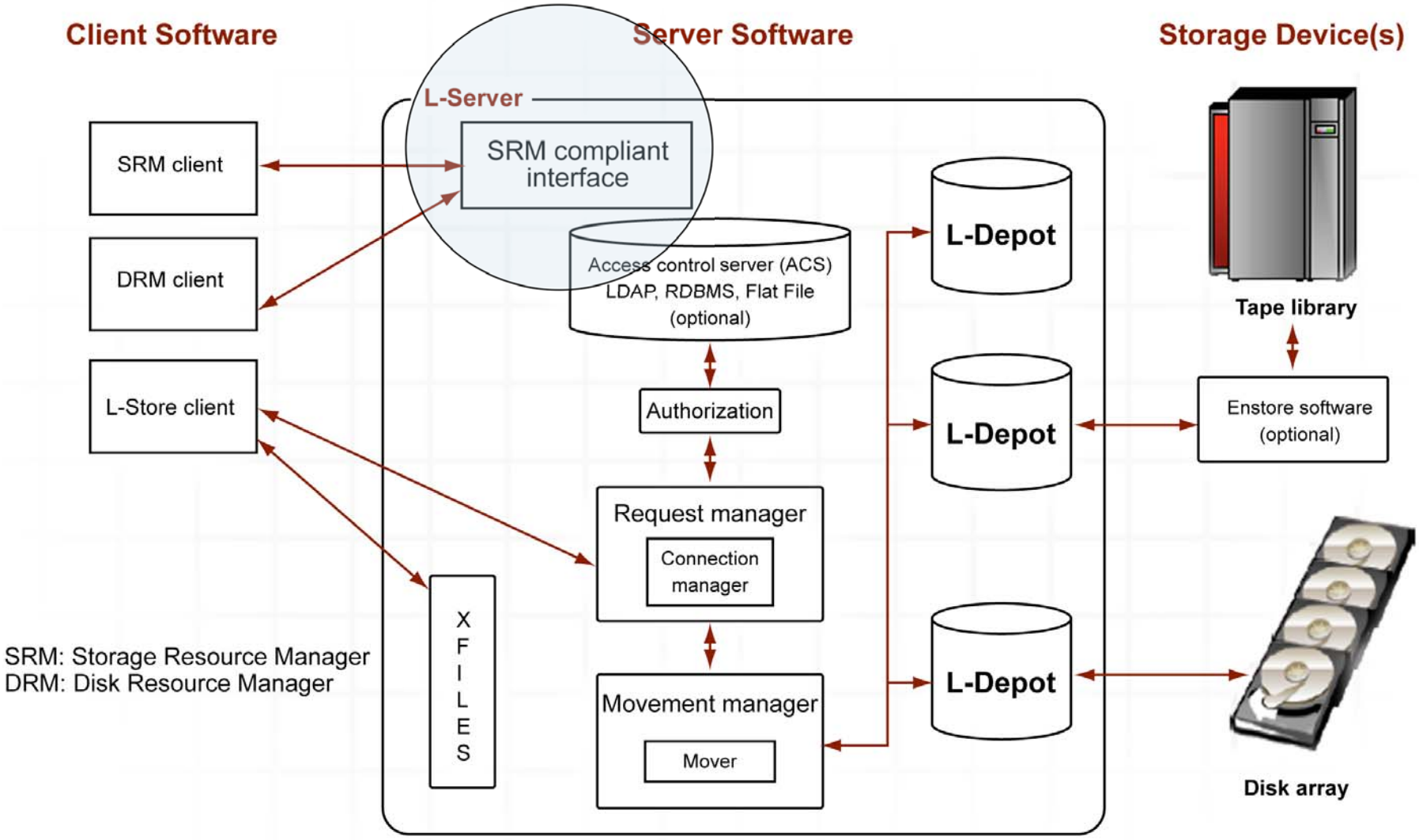
Fusion: Content distribution

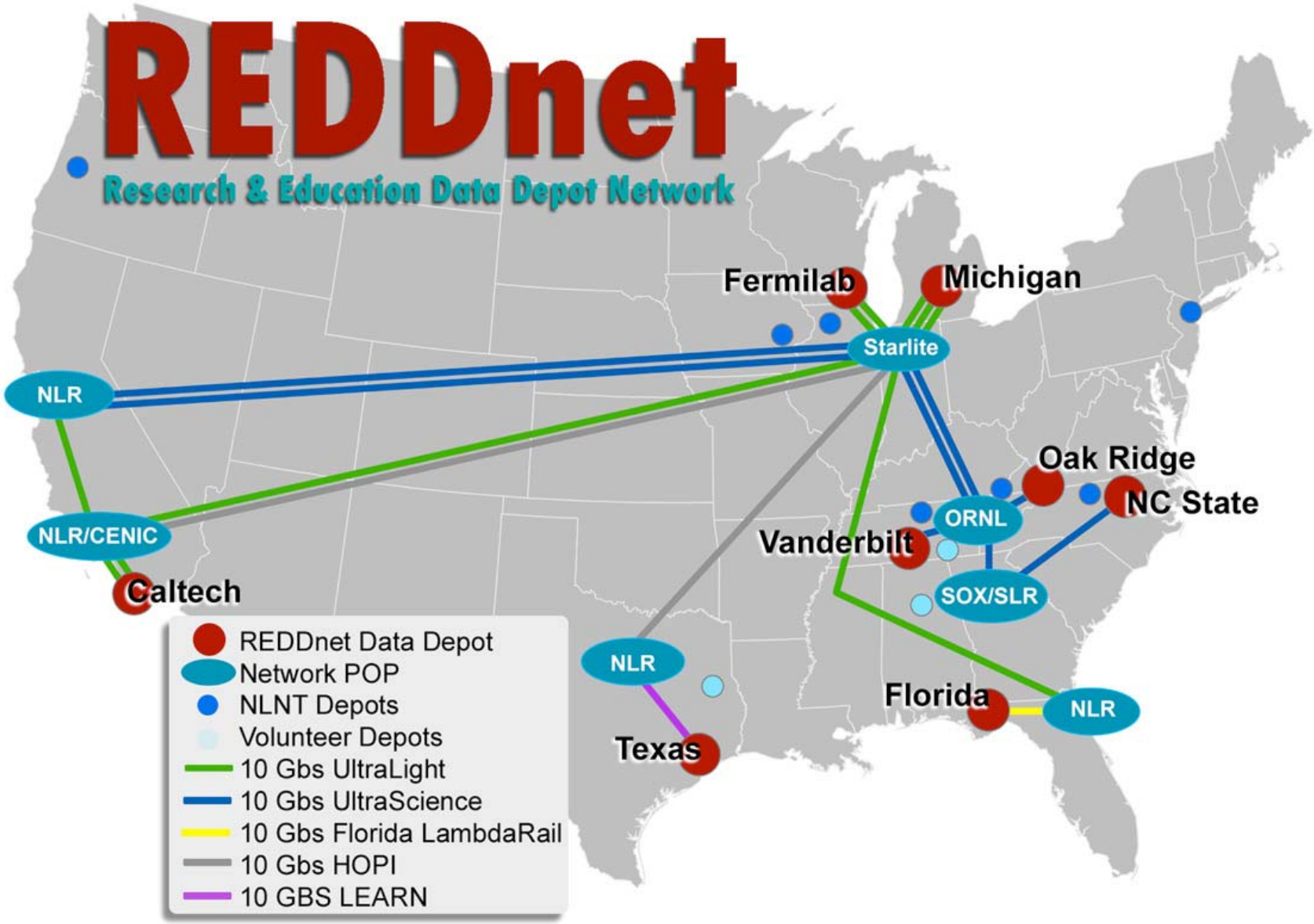


Fusion: Location independent I/O



SRM interoperability





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