

Handle System Evolution and Governance

EUDAT
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Corporation for National Research Initiatives

<http://www.cnri.reston.va.us/>

<http://www.handle.net/>

A Few Words About CNRI

- Not-for-profit organization formed in 1986 to foster research and development for the National Information Infrastructure (now internationally focused)
- Major focus on management of information on networks: Digital Object Architecture
 - Handle System
 - DO Repository
 - DO Registry

Handle System

- Provides basic identifier resolution system for Internet
 - Go from object name to current state data
 - Name can persist over changes in location and other attributes
- Logically a single system, but physically and organizationally distributed and highly scalable
- Enables association of one or more typed values, e.g., IP address, public key, URL, with each id
- Optimized for speed and reliability
- Secure resolution with its own PKI as an option
- Open, well-defined protocol and data model
- Provides infrastructure for application domains
- **OPTIMIZED TO DO ONE THING ONLY:** resolves Handles to type/value pairs – all other functions reside in the applications

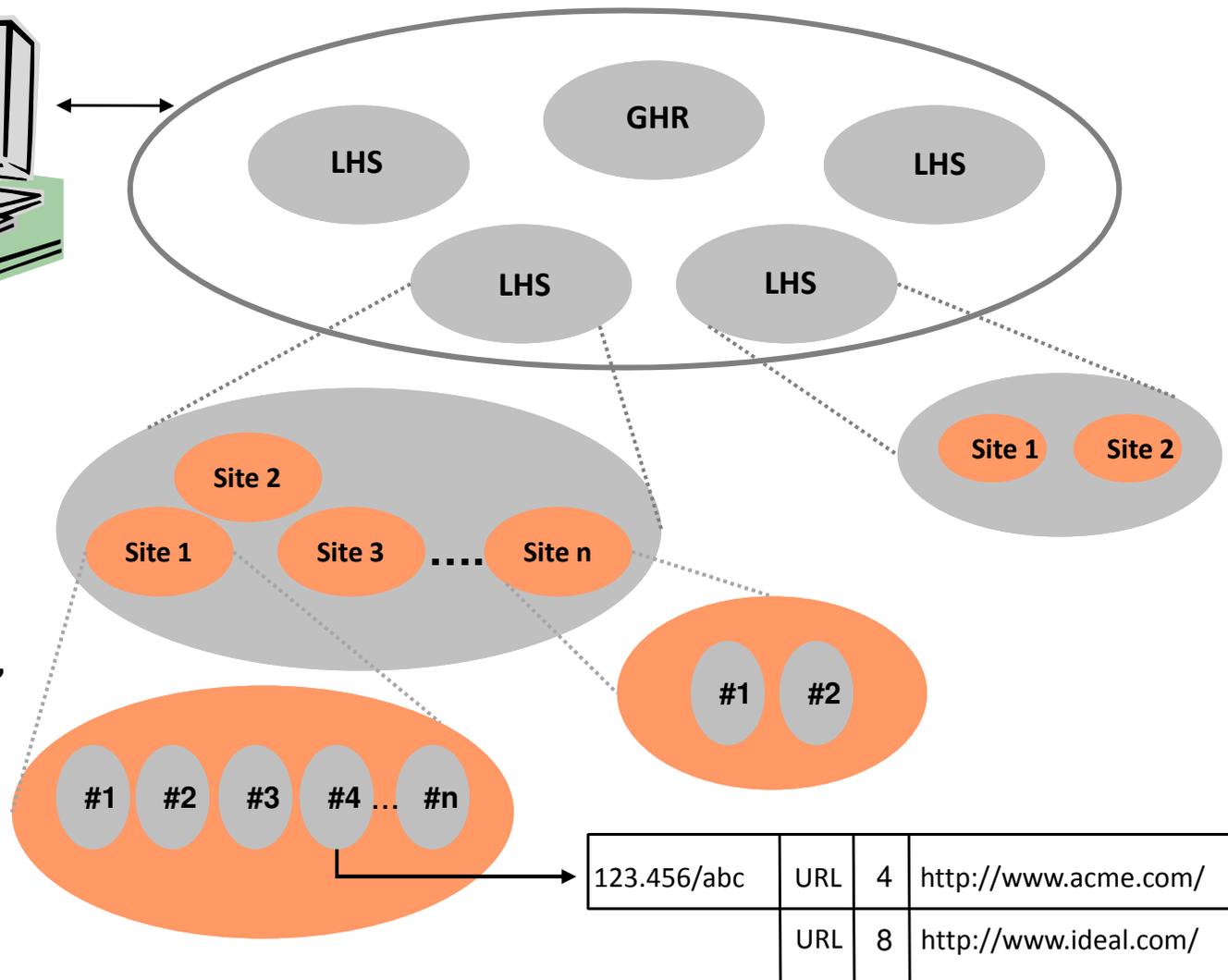
Handle System Adoption by Domain

- Research Project: Early 90s
 - Initial US-funded digital library project (DARPA)
- Library/Publishing: late 90s through 00s and continuing to grow
 - DSpace – turnkey digital library platform (MIT + HP)
 - Digital Object Identifier (DOI) for journal articles
 - International from the start, including Asia
- Breaking out of the publisher/library ghetto: starting late 00s
 - Scientific data
 - Australian National Data Service (ANDS)
 - Max Planck (handles)
 - DataCite (DOIs)
 - EPIC (European Persistent Id Consortium)
 - EUDAT
 - Entertainment Industry
 - EIDR (DOIs)
- Threshold of use and dependence brings governance and sustainability issues
 - Who is CNRI? How long will they be around?
 - Who is in charge?
 - Not just a standards issue due to the global service (cf DNS)

Infrastructural Governance and Sustainability

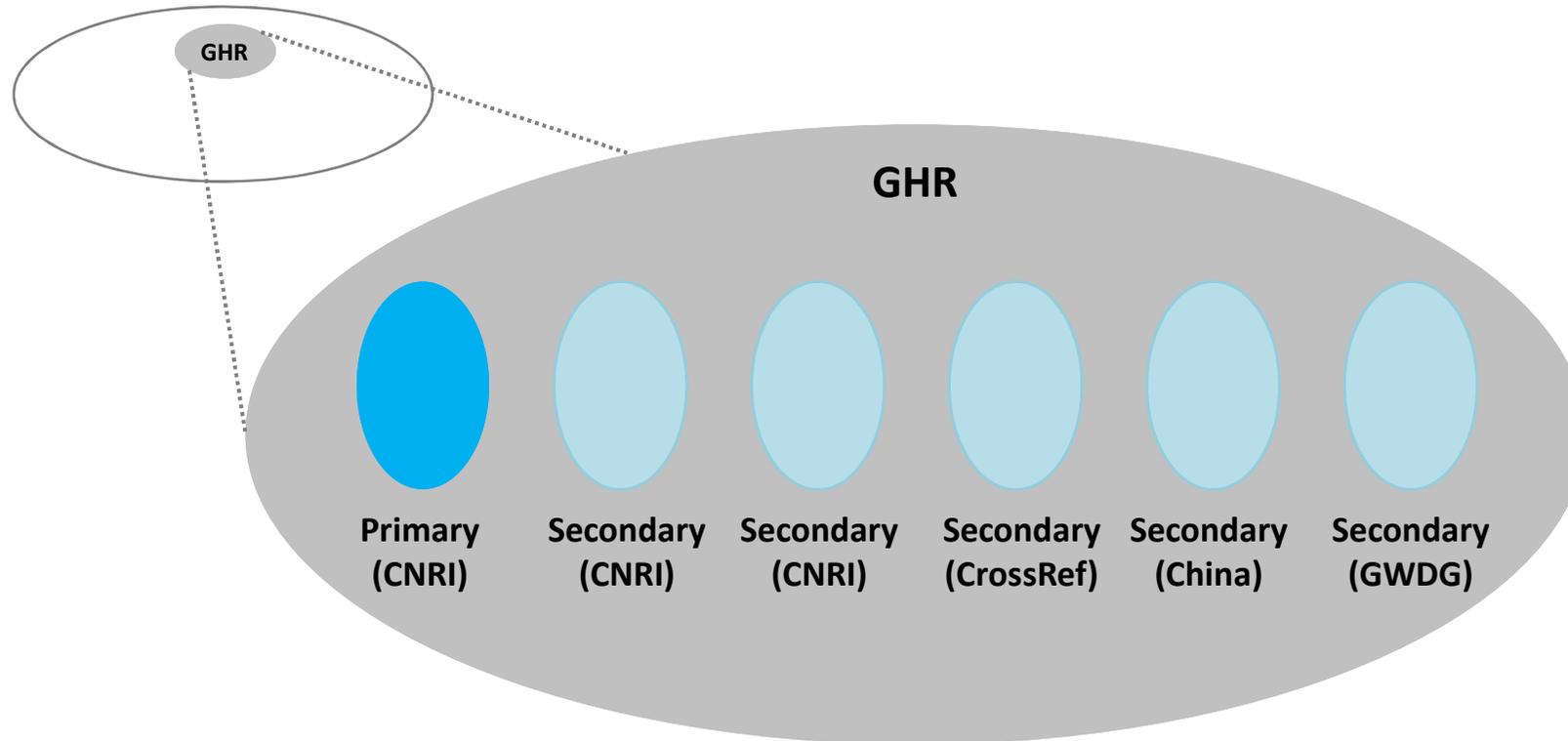
- Spread Responsibility and Control from One Group to Many
 - Involve stakeholders
 - Develop financial sustainability plan
- Develop an organizational model
 - Try to balance long-term and short-term incentives
 - Try to keep the organization from being captured by minority and/or moneyed interests
 - Build in flexibility
- Independence from individual governments or industry players
- DONA Foundation
 - Non-profit being established in Switzerland
 - Peer group of stakeholders will run and financially support the global infrastructure
 - Board of Directors will provide high-level guidance
 - CNRI will transfer relevant rights and technology to the Foundation and continue as 1/N stakeholders
 - Each stakeholder has identical responsibilities to the Foundation but otherwise independent
 - Governments could participate and provide their support out of general revenues
 - Industry could create appropriate business models
 - Formation in process, near term completion
 - Longer range objective is Digital Object Architecture approach to information system interoperability

Handle Resolution



The Handle System is a collection of handle services, each of which consists of one or more replicated sites, each of which may have one or more servers.

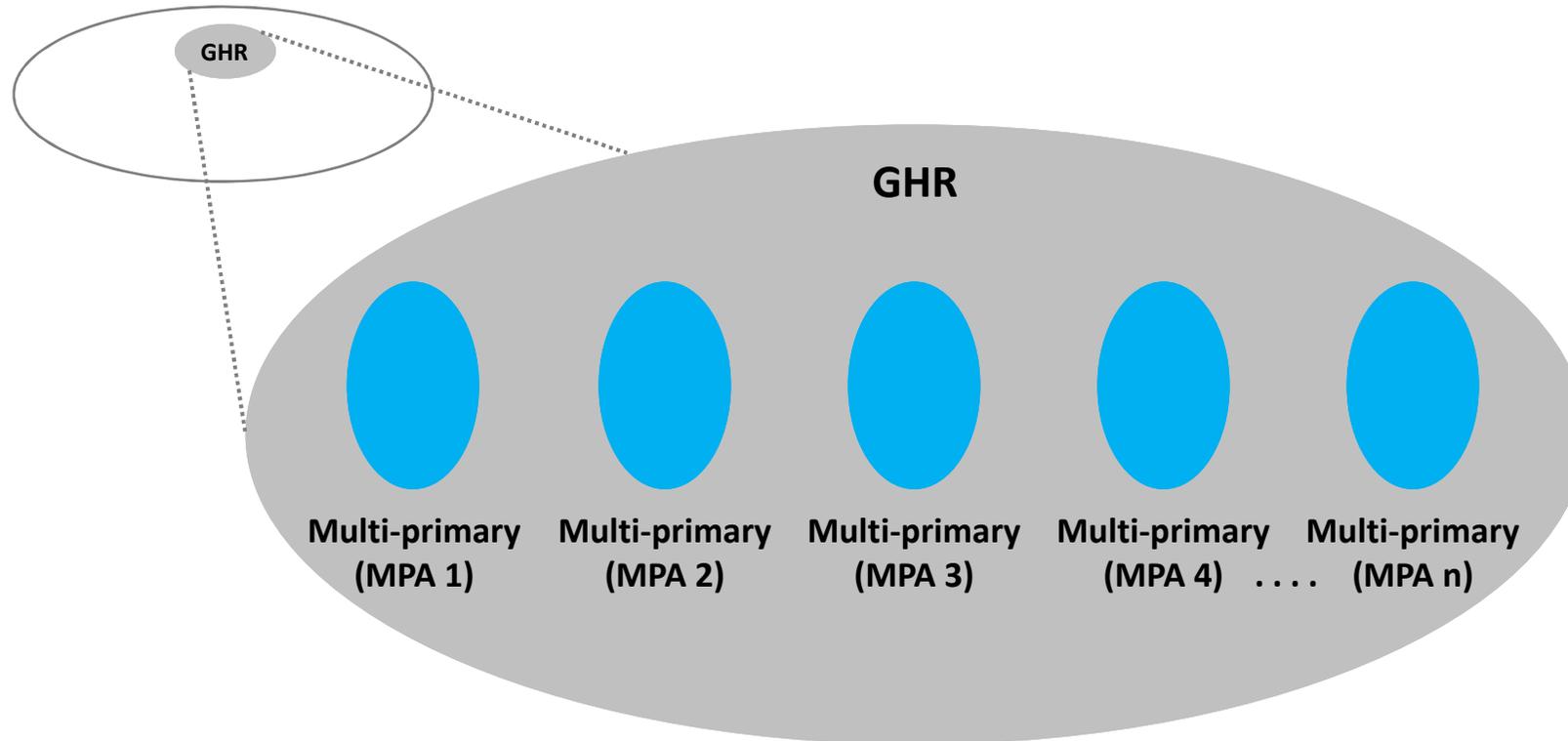
Current Single Primary Global



Current Global Handle Registry Server Configuration

All prefixes created on Primary, mirrored on Secondaries

Future Multi-Primary Global



Future Multi-Primary Global Handle Registry Configuration

Prefixes can be created on any Primary, mirrored on the other Primaries