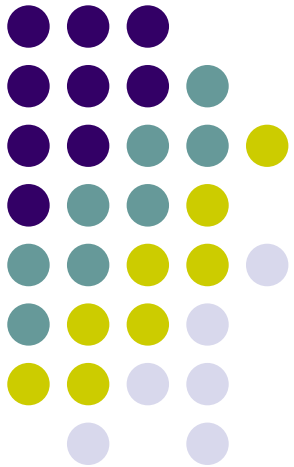
The Internet Registry Information Service (IRIS) Protocol



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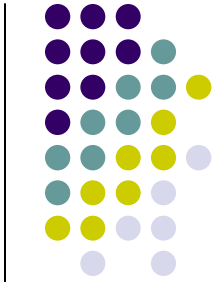
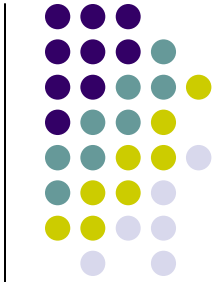
Background



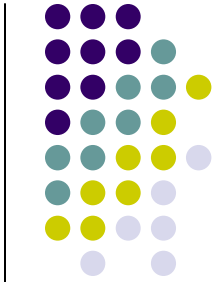
- The IETF's CRISP Working Group
  - CRISP - Cross-Registry Internet Service Protocol
  - The CRISP Working Group was tasked with finding a solution to the problems that currently infest the Nicname/Whois protocol.
  - The CRISP Working Group created a list of functional requirements.
  - Proposals meeting these requirements were evaluated.
  - IRIS was selected as the protocol to publish as a standard.
- Now an IETF Proposed Standard
  - RFCs 3981, 3982, 3983

Flexible and Extensible



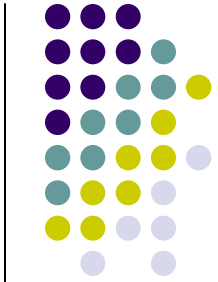
- Registry types within CRISP
  - Domain Registries (thin and thick).
  - Domain Registrars.
  - Number Resource Registries (RIRs).
  - Before CRISP, domain and IP address WHOIS were on divergent paths.
- Outside of CRISP
  - EREG - IRIS for ENUM (work-item of ENUM working group).
  - ECRIT - Emergency Context Resolution for Internet Technology (emergency calls and messaging).
  - NGN (ITU, ETSI, ATIS)

Value



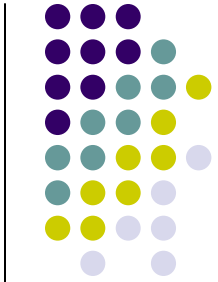
- Decentralized by design.
  - Registrars can keep their data to themselves.
- Navigation.
  - Uses DNS hierarchies where possible.
  - Distinguishes between entity references and search continuations.
    - Entity references are akin to URLS
    - Search continuations are – “restart the search at this different site”
- Multiple authentication mechanisms.
  - Enables better policies surrounding the exposure of whois data.
- Internationalization and IDN Support.
- etc...

Cost



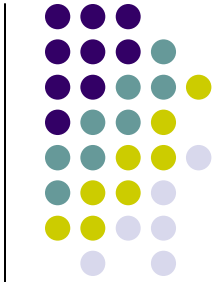
- Open Standard
  - There is no IPR attached to IRIS.
  - No specific implementation necessary.
- Implementation
  - Uses common techniques and components.
    - XML, NAPTR & SRV RRs
  - Open source client and server implementations available.
- Database
  - IRIS is intended to sit atop current registration databases.
  - It does not change a registry's or registrar's database.
    - Because that can be really expensive.
    - IRIS imposes no matrices or tree structures requiring new back-end data models.

CRISP Status



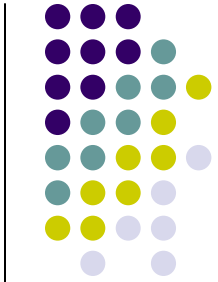
- All of CRISP's original milestones have now been met:
  - Requirements (RFC 3707)
  - Core Protocol and Domain Registry (RFCs 3981, 3982, and 3983)
- Address Registry
  - To be last called in CRISP soon.
- IRIS over UDP, DCHK
  - To be last called in CRISP soon.

Other Work Items



- WHOIS (port 43) cohabitation
  - Dovetails nicely with work already done by DeNIC on SRV records and Whois
  - No changes to existing whois servers.
  - Enables clients to integrate the two services.

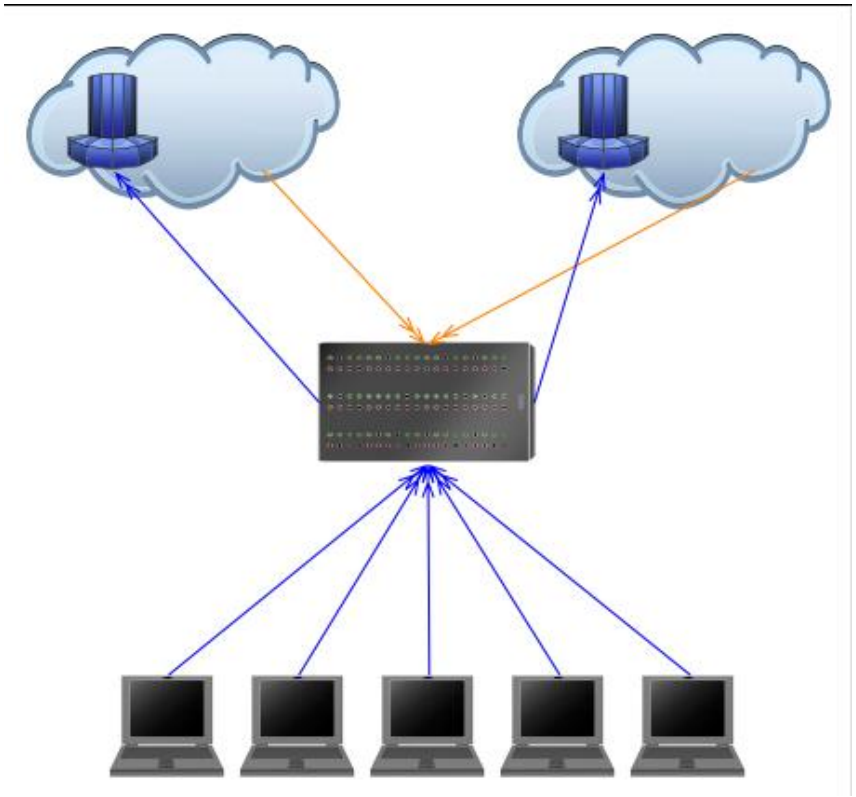
Known Deployments



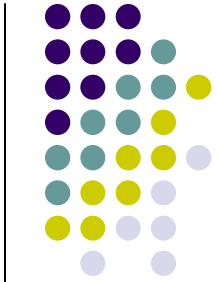
- Current
  - .com/.net (see iris.verisignlabs.com)
    - UDP planned for 2005
- In 2005
  - .de
  - .uk
  - RIPE NCC
- .de, .uk, .com, .net represent over 60% of all registered domains.

Navigation of Servers and Data

- Finding the best server to query first using SRV and NAPTR records within DNS.
  - Use of DNS means there is no need for a “well-known” server.
- Query Distribution with entity references and search continuations.
  - Registries may point to registrars.
  - Registrars may point to registrants.
- New navigation methods may be added.



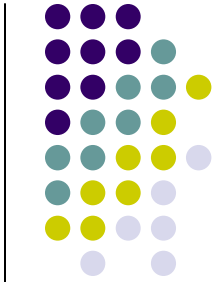
Tiered Access



- Ability to control who gets the information.
  - Policy determines who sees what.
- Coordination can be in-band, out-of-band, or both.
- Adds many more policy options than are available with port 43.

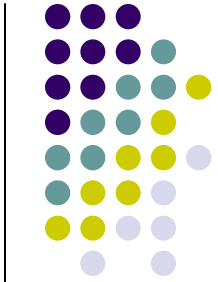
```
$iris kosters.net
  Kosters, Mark
  US

$iris -cert fbi.cert kosters.net
  Kosters, Mark
  13121 Fox Shadow Lane
  Clifton, VA 20124  US
  703-948-3362
```

Authentication Distribution



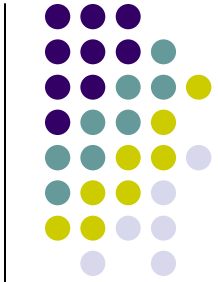
- One of the challenges with tiered access is giving the right users access to the right information without overburdening the servers with the constant need to sync user lists.
- Digital certificates can off-load this burden.
  - Chains of trust.
    - A sender doesn't know the specific user, but does trust the entity that issued the certificate to the user.
  - User-based attributes.
    - A sender doesn't know the specific user, but trusts that a user of a certain type based on data in the certificate.
- "Relay Bags" also allow off-loading for authorization schemes to a policy server.

Policy Neutral



- IRIS is policy neutral.
  - Access can be anonymous and/or authenticated.
  - Data can be given to some users and/or not others.
  - Trust can be based locally, regionally, globally, or all of the above.
  - Information can be centralized, distributed, or centrally indexed but distributed or all of the above.
- Since policy is not in the protocol, it can be differ between servers or sets of servers.
- Policy makers now have more tools.

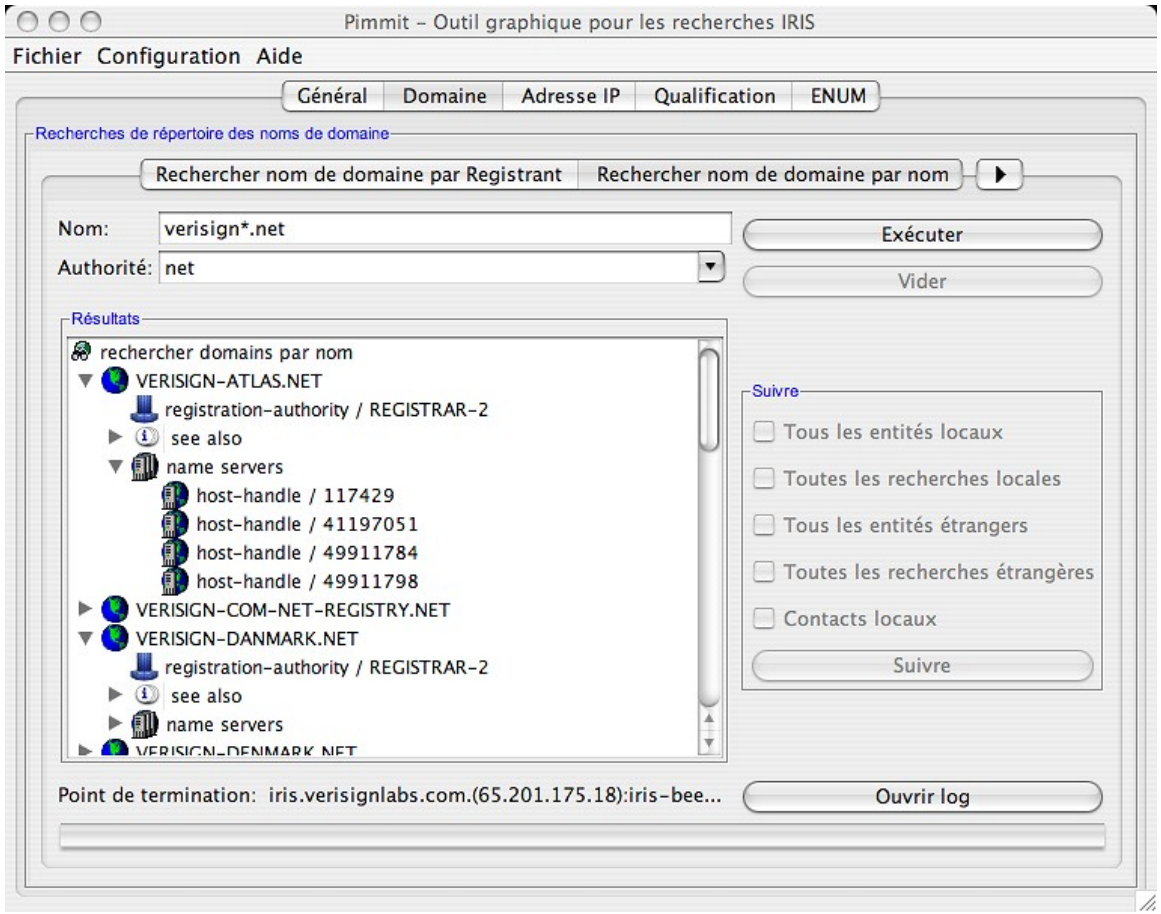
Well Structured



- Well-known queries.
  - Better server performance on database indices.
  - Better client interface.
- Structured and Normalized Data
  - Enables L10N or I18N protocol elements.
  - Richer client presentation.
    - Location of entities are clearly identified.
    - Relation to the query is clearly noted.
- When combined with authentication, enables detailed audit trails.

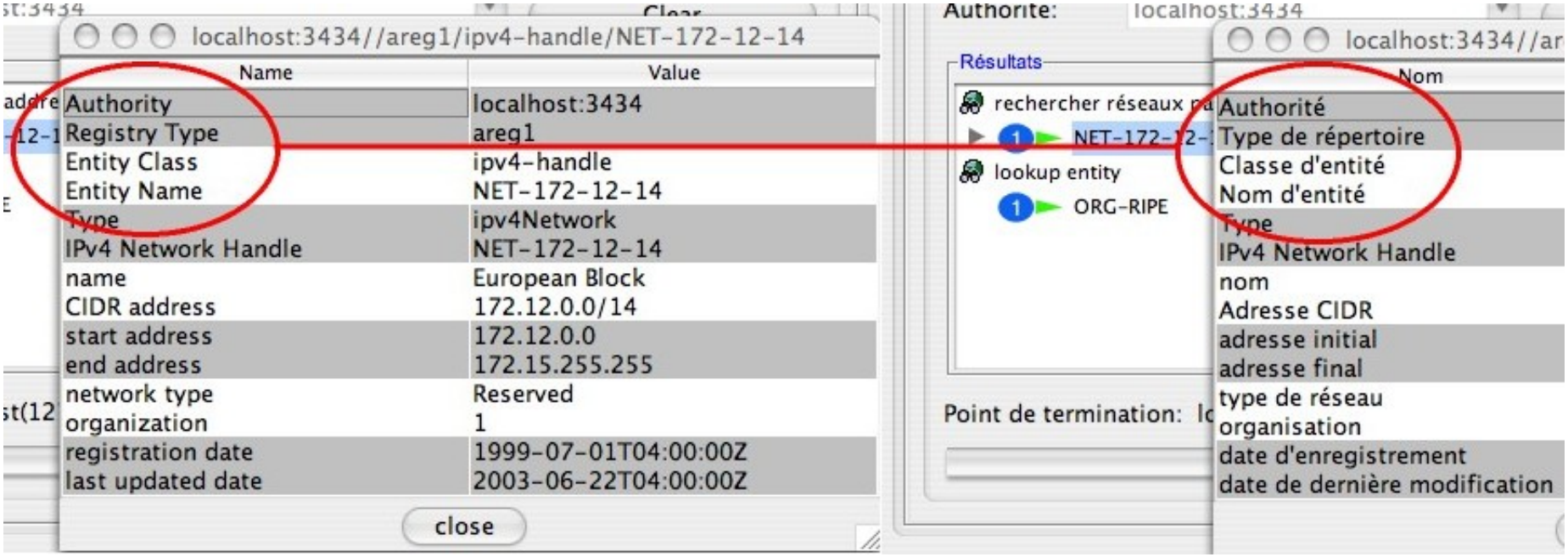
Structure & Internationalization

- The content of the data is under the control of the server.
- The presentation of the data is under the control of the client.



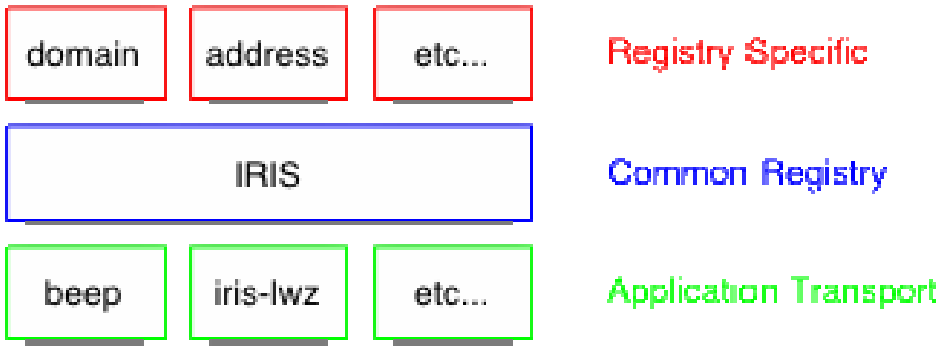
Localization

- For Internationalization:
  - datatypes are given well known tags for localization by the clients
  - data with multiple locales are given language tags

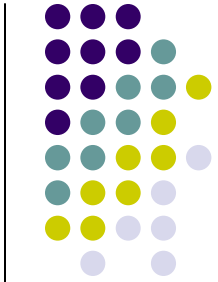


Extensibility Through Layering

- IRIS is a layered protocol
  - Clear lines of responsibility in each layer.
  - Makes re-use of components simple.
- Common Building Components
  - XML, NAPTR & SRV records, SASL

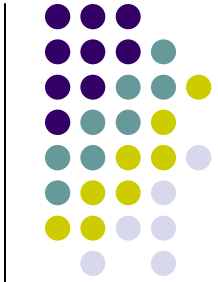


Conclusion



- IRIS Core & DREG are standardized.
  - Work is proceeding in other areas.
- Benefits
  - Decentralization with Navigation
  - Better policy support via multiple authentication
  - Structure and Internationalization
  - Extensible
- Low Cost
  - Bolts atop existing databases.
  - Authorization management.
  - Open source implementations available.

Follow-Up



- If you have additional questions or concerns to be addressed, please feel free to contact us:
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- Or ask the CRISP working group:
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