Lightweight Service Simplification via DNS
draft-cao-lwig-dns-serv-simp-00

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The State-of-the-art
The Problems / space of optimization

- Transmission is much more expensive than computing, especially for wireless link. A lot of evidence, refer to Jari’s slides at technique plenary at IETF82
- Considerable overhead for lightweight services
  - After seveval hundreds bytes transmitted over multiple (>3) transactions, you get "Temp=26.3C"
- DNS query is mandatory, no one can remember the IP address, especially for IPv6...
- Design spaces
  - I. Optimize the application problem, e.g. using CoAP proxy
  - II. Optimize within the DNS round trip, this draft
Ways around

• Information expression
  – How to organize the name space?
• Information storage
  – How to store the information on the DNS server?
• Information query, response and update
  – Using DNS, not to design new protocols
The Solution via an Example

1. Query _temp.locA.example.com
2. Referral for .com
3. Referral for _temp.locA.example.com
4. Query _temp.locA.example.com
5. Information Returned
6. Query _temp.locA.example.com

DNS Roots
.com authority
_in-addr.arpa._ NETBIOS_NAME_RESOLVER
SRV update_temp.locA.example.com
Update result
_temp.locA.example.com authority & Information reservoir
Benefits

• Building on existing blocks, no new protocols.
• Fast response with near client cache.
• Suitable for information retrieval.
• Verified scalability with DNS architecture.
• Security issues addressed by DNSSEC.
Further Considerations

- The TTL of DNS resource records
- The placement of the authority DNS server.
Q & A