

# AI Agent Discovery

Presenters: Roland Schott (roland.schott@telekom.de), Nic Williams (nic@infoblox.com)

Co-Proponents: Behcet Sarikaya (sarikaya@ieee.org), Jim Mozley (jmozley@infoblox.com)

# DNS-Based AI Discovery : DNS AID

- Agents can't interact if they don't know about each other
- Objectives : Decentralized agent-to-agent discovery
  - Avoid Internet fragmentation and sovereignty issues, disadvantaging walled garden approaches that lock consumers into proprietary registries
  - Enable equal opportunities for ownership between circuit/network and app/developer personas
  - Re-use existing technologies as much as possible and minimize extensions
- Proposal: Base the solution on DNS
  - Standardization efforts are reserved for working group activity (TBD)
  - Delivered as a known entry point to an organization (e.g., index.\_agents.example.com) with opportunities for individual agent records
  - This discovery method may be an integration source for *any* protocol development
- Bonus: Using existing technologies for rapid development and adoption
  - Create known subdomains (\_agents.example.com) where SVCB records advertise agents (chat.\_agents.example.com) and their capabilities through parameters (e.g., JSON model card's URI, cost, location, etc).
  - Capability for index servers of all agents at example.com
  - Capability for registry services of all agents or indexes of agents at example.com and example2.com

# Technical summary overview

- Work in progress
  - -01 incorporates feedback for review and discussions
    - Add model card URI
    - Do less with DNS (stripped out many capability recommendations)
  - Aiming for more conversations and IETF control
- Divide discovery into a few key problem spaces:
  - Service and domain
    - Service being the application (e.g. copilot)
    - Domain being the host (e.g. microsoft.com)
  - Discovery states: (known service & domain, known service | domain, neither, reserved)
  - Metadata (metrics required in discovery)
    - JSON model card URI, cost, location, modalities, etc. (yet to be standardized)
- Guidance provided to operators to prevent DNS abuse (spam, record duplication, zones etc.)
- IANA to reserve a leaf attribute zone (e.g. `_agents.example.com`), SVCB params (e.g. cost, location, attestations, JSON model card URI, etc.) which need to be standardized by IETF WGs over time.
  - Strip out the 'mandatory' discovery fields to accelerate discovery, decentralize, facilitate registry-to-registry communications, etc.

# IETF work?

- The IETF has lots of DNS expertise
  - See DNSOP, ADD, DELEG, DNSSD,
- If DNS is to be used within AI agent discovery:
  - This work needs thorough IETF review & collaboration, contributions, etc.
  - It should build on existing work
    - An extension / special use of DNS-SD with \_agents leaf zone (RFC 7558)
    - Utilize SVCB records + params to express metadata (RFC 9460/1)
    - WEBBOTAUTH, DMSC, ANS, DA-ITN, etc.
- Where to do the work?
  - DNSOP, DNS-SD: A possible home
  - New WG most likely in INT (preferred by coauthors)
    - AIPROTO / Agent2Agent (discovery not in charter)
    - Standalone discovery working group (need AD champion, chairs, charter, etc.)

# Work to date and future plans

- AI Discovery Side Meeting (IETF 124 Montreal)
  - <https://github.com/nicknacnic/BANDAID/blob/main/Side%20Meeting%20for%20AI%20Discovery.pdf>
- I-Ds in the Datatracker
  - draft-mozley-aidiscovery
    - Framing the problem independent of all solutions
  - draft-mozleywilliams-dnsop-bandaid
    - Proposing a starting point for discussion of DNS as a solution
- Splitting discovery into DNS-solvable candidate scenarios, and those potentially served by others (eg "tasks" per Arashmid / Hesham & Huawei Canada et al, embodied AI per ITU, CATS, DMSC, etc)
- Mostly working on the Agent2Agent mailing list at the moment
- IETF-125
  - Hackathon, CATALIST BoF, side meetings, talk to us in the corridors, etc.
- IETF-126
  - BoF specifically for discovery or part of AIPROTO/Agent2Agent BoF
- Possible collaboration with ITU-T SG17 (see recent incoming liaison)