Location Configuration Protocol

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The Problem Space

- If the end host is able to derive location on its own or via its access control mechanism, we have no problem and no need for LCP.

- If not......
The Problem Space

OSI Model

layer 7 application
Application, Inc.

Knowledge of location
??

layer 3 network
ISP, Inc.

layer 2 access
Last Mile, Inc.

I know location!
The Problem Space

**OSI Model**
- **layer 7**
  - application
  - Application, Inc.
- **layer 3**
  - network
  - ISP, Inc.
- **layer 2**
  - access
  - Last Mile, Inc.

**Technical and/or business relationship**
- Usually a relationship
- Cannot depend/force a relationship
The Problem Space

OSI Model

- layer 7: Application, Inc.
- layer 3: ISP, Inc.
- layer 2: Last Mile, Inc.

Common point - The end device!
Internet Architecture

Dumb network – Smart endpoints

OSI Model

layer 7
application

layer 3
network

layer 2
access

Location/Presence.com

ISP, Inc.

Last Mile, Inc.

Common point - The end device!

I think I'll advertise my location.
Legacy Architecture(s)

Smart network – Dumb endpoints

OSI Model

layer 7
mydialtone

PhoneCompany, Inc.

layer 3
mynetwork

PhoneCompany, Inc.

layer 2
mywires

PhoneCompany, Inc.

The end device!
What are we doing?

• Should we copy the legacy architecture?
  There are many reasons the old way is dying.

• Or should we use the Internet architecture?
  Can anyone name a successful Internet application that requires direct communication with the access and/or network control plane(s)?

  Now is NOT the time to regress!
Location Configuration Protocol

- A “sighting” protocol as defined in RFC3693
- Where the access provider operates a location server which has a mapping from IP address to location

Driving Requirement(s)
- Where implementing DHCP relay agents required for RFC3825/Civil09 is impossible
- Where implementing DHCP for host configuration is impossible

Differences between DHCP & LCP
- DHCP uses relay agent information as key for location lookup
- LCP uses IP address as key for location lookup
- LCP utilizes TCP as transport, with TLS as an option
Location Configuration Protocol

• Works with NAT/PAT

  Since there is no IP address information within the protocol data, normal address/port substitution mechanisms still work

• Must execute prior to restricted tunnel initialization

  Since source IP address is the key and tunnels would change source IP address, LCP must be executed prior to tunnel establishment
Location Configuration Protocol

- Privacy/Security
  - Uses IP address as identifier/key
  - Uses source IP address, no dependency on host provided data
  - TCP 3-way handshake mitigates simple source-address spoofing
  - Recommend TLS to protect transport
List Comments

• Not able to implement as written!
  No data formats.
    Client to server – will be in -01
    Server to client - intended to support RFC3825 and Civil09 formats
• Doesn’t HELD to this?
  HELD does the same but forces layer violations and is more complex (as a sighting protocol).
• I was surprised to see this given past discussions
  ??
• Can LCP return the location object in PIDF-LO format?
  Currently studying – would like more comments