FTP64: making FTP work through IPv6 → IPv4 translators

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apps area & behave working group meetings
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IPv6→IPv4 translation

IPv6 host → IPv6 network → Translator → IPv4 network → IPv4 host
IPv6→IPv4 translation

IPv6 host

IPv6 network

(client)

Translator

IPv4 network

(stateful or stateless)

IPv4 host

public or private

(server)
FTP and IPv6

• RFC 959 (1985):
  • passive mode (PASV): v4 address+port
  • active mode (PORT): v4 address+port

• RFC 2428 (1998):
  • passive mode (EPSV): only a port
  • active mode (EPRT): address family, address, port
Installed base

- 2491 IPv4 servers tested by Dan Wing:
  - 63% do EPSV successfully
  - 6% time out setting up data connection
- IPv6 clients (not extensively surveyed):
  - all support EPSV
  - except Windows command line client
Possible solutions

1. Update servers to support EPSV
2. Update clients to fall back on PASV
3. Implement application layer gateway in the translator

• The draft mandates 1 and 2 and describes 3.
Server requirements

• MUST:
  • support EPSV
  • ability to switch off EPSV/EPRT
  • report whether EPSV available in FEAT
  • only use control channel address in PASV
Client requirements

- MUST support EPSV
- Recommended that after EPSV failure (5xx or timeout) retry with PASV
- assume that address in 227 response is control channel remote address
- MUST NOT use arguments with EPSV
ALG

- EPSV $\rightarrow$ PASV is easy
- EPRT $\rightarrow$ PORT is harder with a stateful translator $\rightarrow$ could be left unimplemented
- Bother with stateful port 20 handling?
  - not too hard, but still in use?
- Don't try to translate three-way FTP
- Go into transparent mode after AUTH
Questions?