

# Simplified MAAP proposal

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# Concerns

- Complexity introduced by server support
- Server support unproven since server behavior is unspecified
- Other issues

# Server benefits

- Reduction in multicast traffic.
  - MAAP messages are small and infrequent.
  - MAAP multicast traffic is very small in comparison to traffic generated by transmission on the multicast address allocated by MAAP
- Potential improvement in time required to allocate a multicast address. Guess and check could take an indeterminate amount of time.
  - The layer 2 networks targeted by 1722 are presumably of limited scale.
  - Increasing the size of the allocation pool from 65,000 to, say, 16 million address would significantly improve performance
- Assignment persistence - same devices get same addresses
  - Protocol does not identify distinct applications on a single device
  - Persistence on the device is already encouraged
  - Server improves but does not guarantee persistence

# Server issues

- Additional complexity
  - Protocol complexity
  - Server implementation
  - Merging networks
- Improper operation when multiple servers are (erroneously) present on the network
- Server behavior must be specified

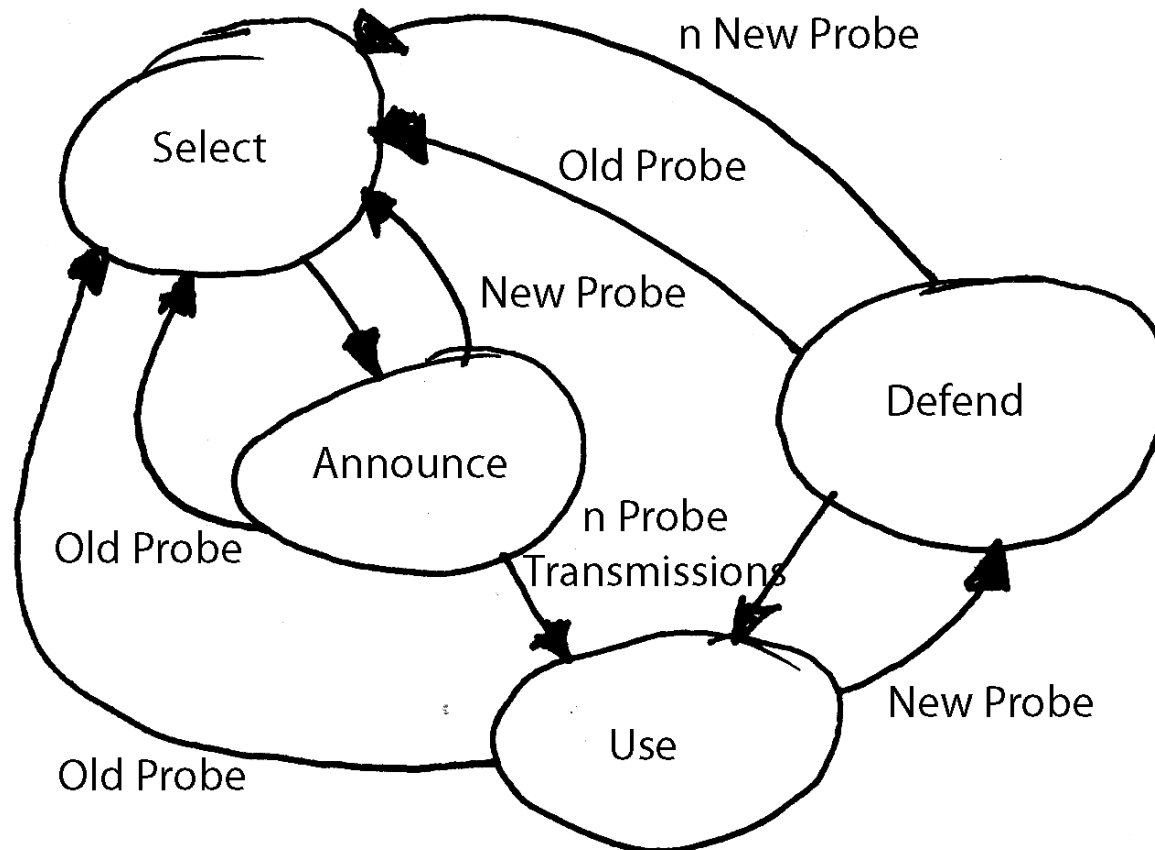
## Other issues

- DEFEND\_ALL causes multicast flurry and is not a reliable discovery mechanism
- Justify distinct PROBE, DEFEND and ANNOUNCE messages
- Announce procedure does not address merged networks
- Justify need for explicit RELEASE
- Reliable communications to server

# Proposal overview

- Single message type
- No server support
- 300-500 ms multicast address acquisition
- 10 s recovery on network merge

# State diagram



# State descriptions

- Select
  - Random or persistent selection of multicast address (range)
- Announce
  - Use **not** permitted
  - Transmit Probe at accelerated rate
  - Listen for overlapping Probe from others
    - Select
- Defend
  - Use permitted
  - Transmit Probe at accelerated rate
  - Listen for overlapping Probe from others
    - Select on Old or insistent new
- Use
  - Use permitted
  - Transmit Probe at nominal rate with variation
  - Listen for overlapping Probe from others
    - Defend



# Probe message

Message\_type – 16 bits

Age – 32 bits

Start\_address – 48 bits

Count – 16 bits

# Message\_type

- Unnecessary with single message type
- Future new messages?
- Message updates?
- What to do on version mismatch?

# Age

- Seconds since first Probe transmission
- Address allocation relinquished on receipt of overlapping Probe with equal or greater Age
  - With equal ages, both lose

# Requested address

- Address range specification
  - Start\_address
  - Count

# Constants

- MAAP\_PROBE\_INTERVAL – 100 ms
- MAAP\_PROBE\_RETRIES – 3
- MAAP\_ANNOUNCE\_INTERVAL – 10 s
- MAAP\_ANNOUNCE\_VARIATION – 1 s

## Releasing an address (range)

- Cease transmission of associated Probe messages

# Merging or extending

- Announce/Defend with revised Probe
  - Expand range
  - Reset age to 0
- Separate Probe of extension
  - Merge in Run state
  - Use largest age