Address Usage Recommendations

draft-gont-6man-address-usage-recommendations-03

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Address Usage Problem

• Multiple Addresses: temporary and stable
• Outgoing address selection is well specified in RFC 6724
• Server address selection is not well specified
• Dominant practice: Bind(socket, [::]:<port>)
Issues with Bind(socket, [::]:<port>)

• Unexpected address discovery
  • Temporary address exposed in outgoing connections
  • Adversary probe range of service ports for that address

• Availability outside the expected scope
  • Service is meant to be local, e.g., only exposed through mDNS
  • But it is available in global scope
Alternative to Bind(socket, [::]:<port>)?

• In theory, developers could
  • Iterate all the addresses available on all interface
  • Pick the ones that fits the application’s profile
  • Bind individual sockets to each selected address

• In practice, few developers do that
  • Requires tracking address changes
  • Requires testing address properties
  • Tends to not be portable

• And it may not even be available in “service level” API
Address Configuration issues

• Address Selection is performed by the application
• Address Configuration is performed by the system
• Several options are available
  • Configure stable addresses or not,
  • Configure temporary addresses or not,
  • Configure addresses globally for the system, versus by subsystem
    • Sandboxed browser, Container, Compartment...
Changes in the last revision

• Note that addresses could be selected in a number of ways:
  • TCP/IP stack filtering
  • Application-based filtering
  • Firewall-based filtering
• Minor editorial changes and clarifications
Next steps

• Keep document focused on problem statement?
  • Leave solutions to a separate document

• Adopt as wg item?