MANRS a community effort for improving global routing security

https://www.manrs.org/
Is routing security a problem?

• Internet routing infrastructure is vulnerable
  • Traffic can be hijacked, blackholed or detoured
  • Traffic can be spoofed
  • Human error and malicious attacks
  • A fix for malicious activity can impact legitimate traffic after attack ceases

• BGP is based on trust
  • No built-in validation of the legitimacy of updates
Are there solutions?

• Yes!
  • Prefix and AS-PATH filtering, RPKI, IRR, ...
  • BGPSEC under development at the IETF
  • Whois, Routing Registries and Peering databases

• But…
  • Lack of deployment
  • Lack of reliable data
Mutually Agreed Norms for Routing Security (MANRS)

MANRS defines four concrete actions that network operators should implement
  • Technology-neutral baseline for global adoption

MANRS builds a visible community of security-minded operators
  • Promotes culture of collaborative responsibility
Good MANRS

- **Filtering** – Prevent propagation of incorrect routing information
  - *Own announcements and the customer cone*

- **Anti-spoofing** – Prevent traffic with spoofed source IP addresses
  - *Single-homed stub customers and own infra*

- **Coordination** – Facilitate global operational communication and coordination between network operators
  - *Up-to-date and responsive public contacts*

- **Global Validation** – Facilitate validation of routing information on a global scale
  - *Publish your data, so others can validate*
MANRS is not (only) a document – it is a commitment

• The members **support** the Principles and **implement** the majority of the Actions in their networks.

• A member becomes a Participant of MANRS, helping to **maintain and improve** the document and to **promote** MANRS objectives
Two years of MANRS

- Officially launched in November 2014
- 9 initial participants from across North America and Europe
- **BCOP** released in 2014 through work with operator forums
- **47 networks participating as of May 1 2017 covering almost 100 ASNs**

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<thead>
<tr>
<th>Year</th>
<th># of AS</th>
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<tr>
<td>2014</td>
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<td>2015</td>
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<td>2017 (so far)</td>
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Evolution of MANRS a platform for related activities

• Developing better guidance
  • MANRS Best Current Operational Practices (BCOP) document:
    http://www.routingmanifesto.org/bcop/

• Training and certification program
  • Based on BCOP document and an online module

• Bringing new types of members on board
  • IXP Partnership Program
How to sign up for MANRS

• Go to https://www.manrs.org/signup/
  • Provide requested information
  • Please provide as much detail on how Actions are implemented as possible

• We may ask questions and ask you to run a few tests
  • Routing “background check”
  • Spoofer https://www.caida.org/projects/spoofer/

• Your answer to “Why did you decide to join?” may be displayed in the testimonials

• Download the logo and use it

• Become an active MANRS participant