DOTS Requirements

Andrew Mortensen
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Overview

• DOTS requirements in context
• Establish common terminology (for now)
• General and operational requirements
• Data model TBD
• Status
Selected terminology

- **DOTS agent** — DOTS-aware element
- **DOTS client** — agent requesting mitigation
- **DOTS server** — agent handling client signals
- **DOTS relay** — client/server mediating agent
- **DOTS signal** — message between DOTS agents
- **DOTS client signal** — message from DOTS client
- **DOTS server signal** — message from DOTS server
- **Signal channel** — DOTS signal transport layer
- **Data channel** — Bulk data transport layer
DOTS agents — client and server
DOTS agents — relay
General Requirements

1. Interoperability
2. Extensibility
3. Resilience
4. Bidirectionality
5. Message size under MTU
6. Message integrity
7. Replay protection
8. Bulk data exchange
Interoperability and Extensibility

• Interoperability is fundamental to DOTS goals
• Extensibility acknowledges current solutions and looks ahead to changing needs
Protocol resilience and bidirectionality

- Protocol must continue operation in “hostile network conditions”
- Need for DOTS agents to signal, monitor peer health, provide feedback
General signal requirements

• Fit within MTU to avoid message loss incurred by possible failed fragment delivery
• Maintain integrity when transmitting signal across transit networks
• Replay protection to prevent protocol abuse
Bulk data exchange

- Supplement/bootstrap signaling relationship
- DOTS agent provisioning and discovery
- Configuration
- Characteristics suggest separate data channel desirable
Bulk data exchange

- Supplement/bootstrap signaling relationship
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Operational requirements

1. Common transports
2. Mutual authentication
3. Session health monitoring
4. Mitigation capability opacity
5. Mitigation status feedback
6. Mitigation scope
Common transports

• Obvious requirement is obvious
Mutual authentication

- DOTS may affect network path or policy, agents must authenticate each other
Session health monitoring

- DOTS agents must be able to detect signal fidelity, peer availability
- Support protocol resilience and bidirectionality
Mitigation capability opacity

• Avoid assumptions about remote agents’ defensive capabilities
• DOTS client signal indicates mitigation need and desired outcome: **advisory** signaling
• DOTS server signal describes action taken
Mitigation scope

- DOTS client signal indicates desired address space coverage
- DOTS client signal may further narrow scope using e.g. transports, targeted ports
- DOTS client may request adjusted scope during attack
Bulk data channel requirements

1. Reliable transport
2. Data privacy and integrity
3. Mutual authentication
4. Black- and whitelist management
Data channel transport

1. Reliable transport
2. Data privacy and integrity
3. Mutual authentication
4. Black- and whitelist management
Data model requirements

1. TODO
Status

• Initial draft published 19 October 2015
• Very little WG feedback so far
• Please send feedback on mailing list, or…
• Open github issues against requirements draft
Next Steps

• Align with and inform use cases
• Where does terminology belong?
• Incorporate feedback
• Inform and be informed by new protocol work
Questions?

• http://github.com/dotswg/dots-requirements