The Data Model of Network Infrastructure Device Data Plane Security Baseline

draft-xia-sacm-nid-dp-security-baseline-03

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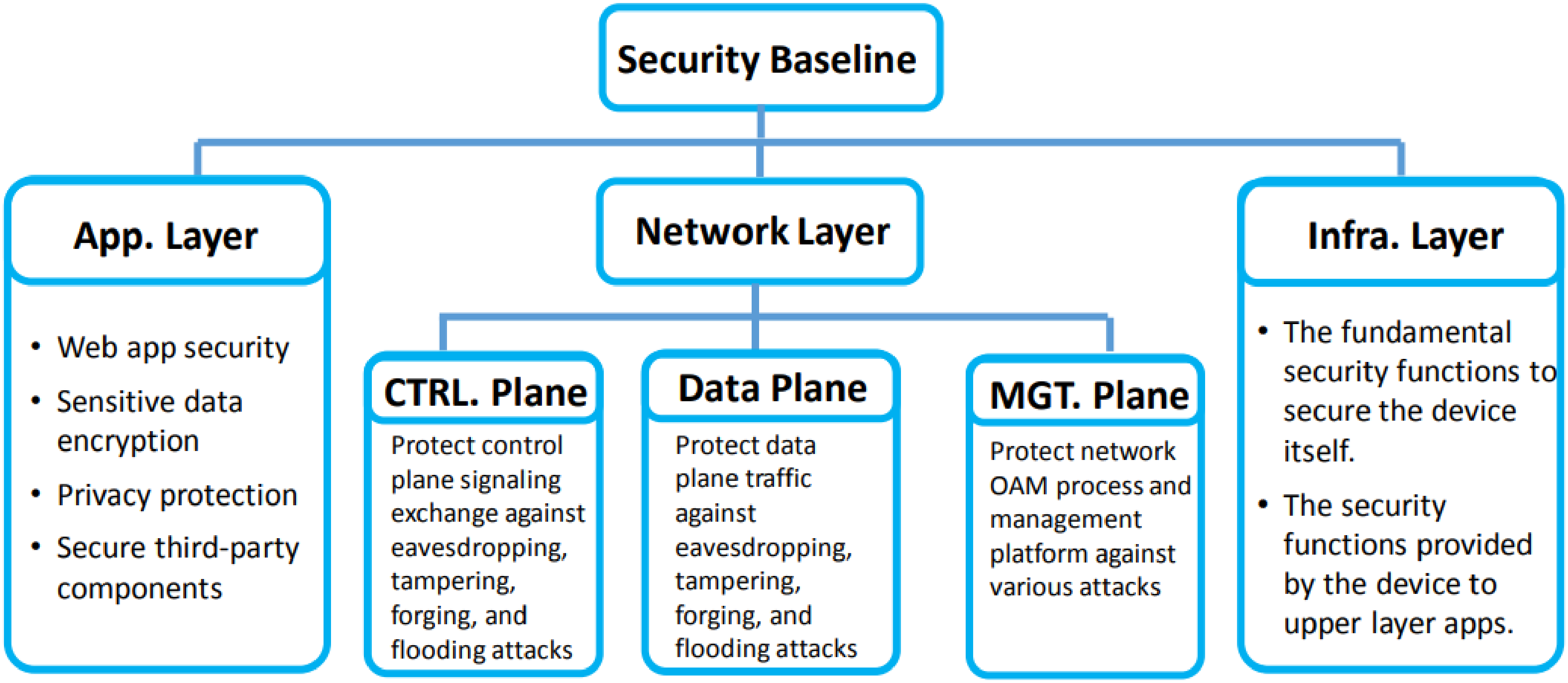
Quick Recap

- Objective

  Define a minimum set of configuration and status parameters of the security related functions/services on a network device that can be collected by SACM collector and further consumed by SACM evaluator to benchmark the device security postures.

- Security Baseline Overview



Security Baseline

App. Layer

- Web app security
- Sensitive data encryption
- Privacy protection
- Secure third-party components

Network Layer

CTRL. Plane

Protect control plane signaling exchange against eavesdropping, tampering, forging, and flooding attacks

Data Plane

Protect data plane traffic against eavesdropping, tampering, forging, and flooding attacks

MGT. Plane

Protect network OAM process and management platform against various attacks

Infra. Layer

- The fundamental security functions to secure the device itself.
- The security functions provided by the device to upper layer apps.

Updates to -03 version

- Data Module Structure
  - ✓Re-organize the data module structure of the security functions in a classified way, example as follows

```
module: layer2-protection
   +--rw mac-limit
      +--rw vlan-mac-limit
      +--rw interface-mac-limit
      ...
   +--rw traffic-suppress
      +--rw vlan-traffic-suppress
      +--rw interface-traffic-suppress
      ...
```

Example 1: Layer2 Protection

- The difference of the brief structure between before and after is as below:

Before

```
module: mac-limit
   +--rw mac-limit
      +--rw vlan-mac-limit
      +--rw interface-mac-limit
      ...
      +--rw vlan-traffic-suppress
      +--rw interface-traffic-suppress
      ...
```

After

```
module: layer2-protection
   +--rw mac-limit
      +--rw vlan-mac-limit
      +--rw interface-mac-limit
      ...
   +--rw traffic-suppress
      +--rw vlan-traffic-suppress
      +--rw interface-traffic-suppress
      ...
```

Example 2: DHCP Snooping

- The difference of the brief structure between before and after is as below:

Before

```
module: dhcp-snooping
   +--rw dhcp-snp-global
      +--rw enable
      +--rw packet-check
      +--rw rate-limit
      ...
   +--rw dhcp-snp-vlan
      +--rw enable
      +--rw packet-check
      +--rw rate-limit
      ...
   +--rw dhcp-snp-interface
      +--rw enable
      +--rw packet-check
      +--rw rate-limit
      ...
```

After

```
module: dhcp-snooping
   +--rw dhcp-snp-enable
      +--rw global
      +--rw vlan-config
      +--rw interface-config
      ...
   +--rw dhcp-snp-packet-check
      +--rw global
      +--rw vlan-config
      +--rw interface-config
      ...
   +--rw dhcp-snp-rate-limit
      +--rw global
      +--rw vlan-config
      +--rw interface-config
      ...
```

Future work

- Continue optimizing the data model
- Complete the YANG modules for all data plane baseline blocks.
- Seek more comments and co-authors are welcome