SYMPLE Scripting Protocol and architecture for seamless management of XML based mobile devices and SNMP based devices

draft-adwankar-netconf-symple

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Why Symple?

- OEM' s can manage their equipment better than anybody else. They have
  - Internal details for quicker diagnosis of problems
  - Range of possible solutions
  - Mechanisms to optimize performance
  - Scalable approaches to manage
- Symple provides mechanisms that allow OEM better manage their equipment

SYMPLE

- XML based scripting mechanism
- Ease of management script construction
- Script download using standardized mechanism
- Delegation of script execution to SYMPLE platform

What is management script?

- Set of Instructions characterized by
  - Periodic execution
  - Coordinated execution
  - Dynamic control path for instructions based on equipment operational state
  - Dynamic sequencing of instructions (or set of instructions) based on equipment operational state

What is its use?

- Policy creation and enforcement
- Equipment diagnostics and root cause analysis
- Service performance measurements
- Optimized local execution (Useful in low bandwidth settings such as wireless)
- Postpone non-critical management operations till right time

Synclet

- Executable script based on SyncML DM
- Consists of
  - Guarded Policy (Non functional aspects)
  - Action Routine (Management script)
- Embeddable in other protocols such as NetConf

Example: Latency Measurement

```
<Synclet>
    <Schedule>
        <Meta>
                <URI> http://www.yahoo.com/ </URI>
        </Meta>
        <Date> 01028526240000 </Date>
        <Period> 1 </Period>
        <Repeat> 20 </Repeat>
        <Get>
            < Item>
                <Target>
                    <LocURI>
                            ./sync/DM/Performance/Network/Latency
                    </LocURI>
                </Target>
            </Item>
        <Get>
    </Schedule>
</Synclet>
```

Example 2: Device Diagnostics

```
<Synclet>
    <Diagnostics>
        <Assert>
            <Item>
                <Target> <LocURI>
                            ./Sync/DM/WAP/WAPSTNG1/GPRS_APN
                </LocURI> </Target>
                <Data>  gprs.operator.com </Data>
            </Item>
        </Assert>

        …
        <Exception>
            <Replace>
                <Item> <Target><LocURI>
                    ./Sync/DM/WAP/DEFAULTWEBSESSION
                    </LocURI></Target>
                <Data> www.symple.org/web_settings </Data>
                </Item> </Replace>
        </Exception>
    <Diagnostics>
</Synclet>
```

Need for Seamless Management

- Number of different management protocols e.g. SNMP, SyncML DM, NetConf
- Problem may involve combination of different devices supporting different protocols
- Need atomic management actions that span different devices

Message Flow

SNMP Manager

Multi-Protocol Gateway

SYMPLE Manager

Mobile Terminal

(1) Terminal Management Operation

Resolve to terminal address.

Trigger message to trigger terminal management agent

Credentials check

(3) Notify Status

(2) Schedule new TM

Credentials, Capabilities exchange

(4)

Send TM task

Execute TM operation

Send Results

(5) Send Results

Send Status

(6) Results to SNMP manager