Provisioning of VoIP Phones

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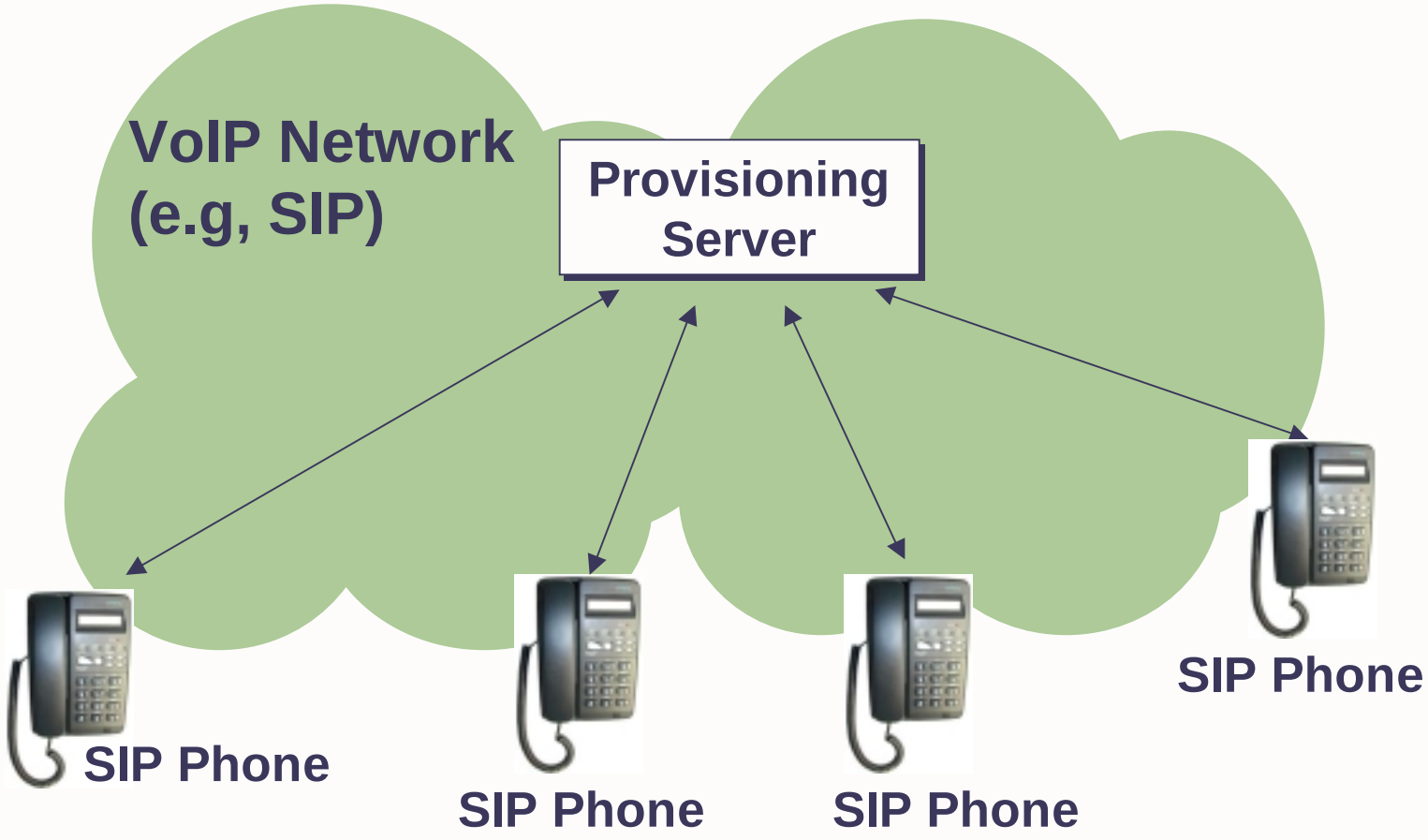
What Is Provisioning?

- Provisioning means different things to different people.
- The process of enabling a user to access new or additional services
- Provisioning in the VoIP network includes
  - Network provisioning: BW, QoS, IP address, hostname, etc
  - Service provisioning: Billing, authorization, service activation, subscribers info, etc
  - Device provisioning: Gateways, CPEs, MTA, phones, etc
- Manual vs automated provisioning

Why Automated Provisioning?

- Automated provisioning will accelerate the ability to provide better services to users
  - Rapid revisions
  - More choices of services
  - Flexibility in service usage
  - Efficient way to manage systems
  - Easily expandable
  - Reduce cost of maintenance and support

Provisioning in VoIP Network



Provisioning of VoIP Phones

- Configuration
- Phone firmware
- Feature upgrade
- New applications

Provisioning Method for IP Phones

- Three entities
  - Provisioning server: Security, authentication, notification
  - Configuration server: provisioning file holder
  - IP phones: initiates download
- Pull vs Push
- Notification of provisioning
  - SNMP
  - Other method (e.g, NOTIFY method in SIP)
- Download provisioning file to devices
  - TFTP
  - HTTP

SNMP

- Simple Network Management Protocol for Internet network management SNMP v3
- IETF RFC 2570, April 1999
- SNMP v1 and v2 are widely deployed
- SNMP uses UDP
- Used to notify provisioning need to devices
- Downloading provisioning info by TFTP or HTTP

TFTP

- Trivial File Transfer Protocol
- IETF RFC 1350, July 1992
- A simple form of the File Transfer Protocol (FTP).
- TFTP uses the User Datagram Protocol (UDP)
- TFTP service runs at port 69
- TFTP supports five types of packets: Read request (RRQ), Write request (WRQ), Data (DATA), Acknowledgment (ACK), and Error (ERROR)

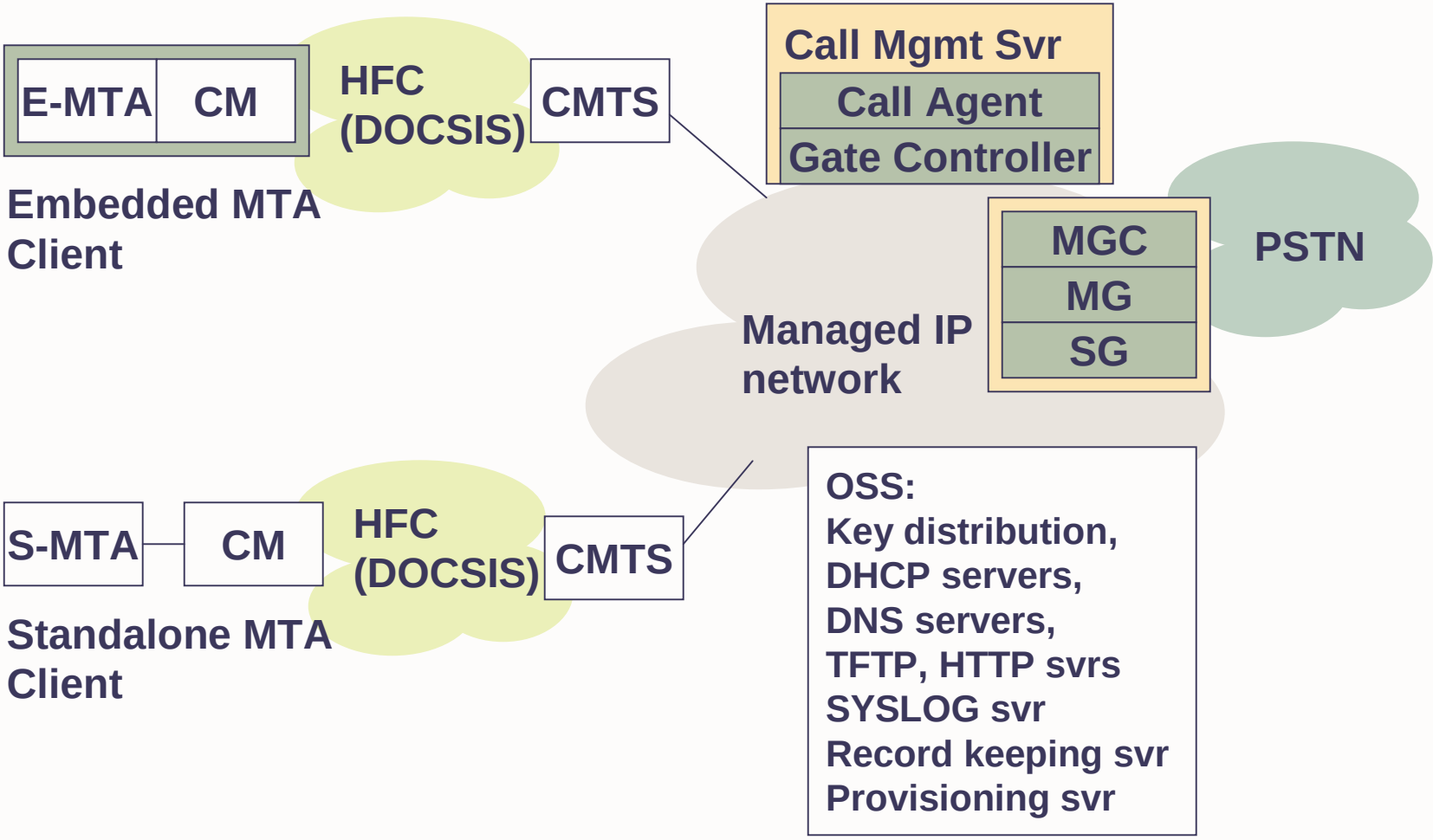
HTTP or HTTPS

- Hypertext Transfer Protocol -- HTTP/1.1
- IETF RFC 2616
- An application-level protocol for distributed, collaborative, hypermedia information systems
- Widely used in accessing WWW
- The client typically makes a TCP-IP connection to the server
- If the port number is not specified, 80 is always assumed for HTTP

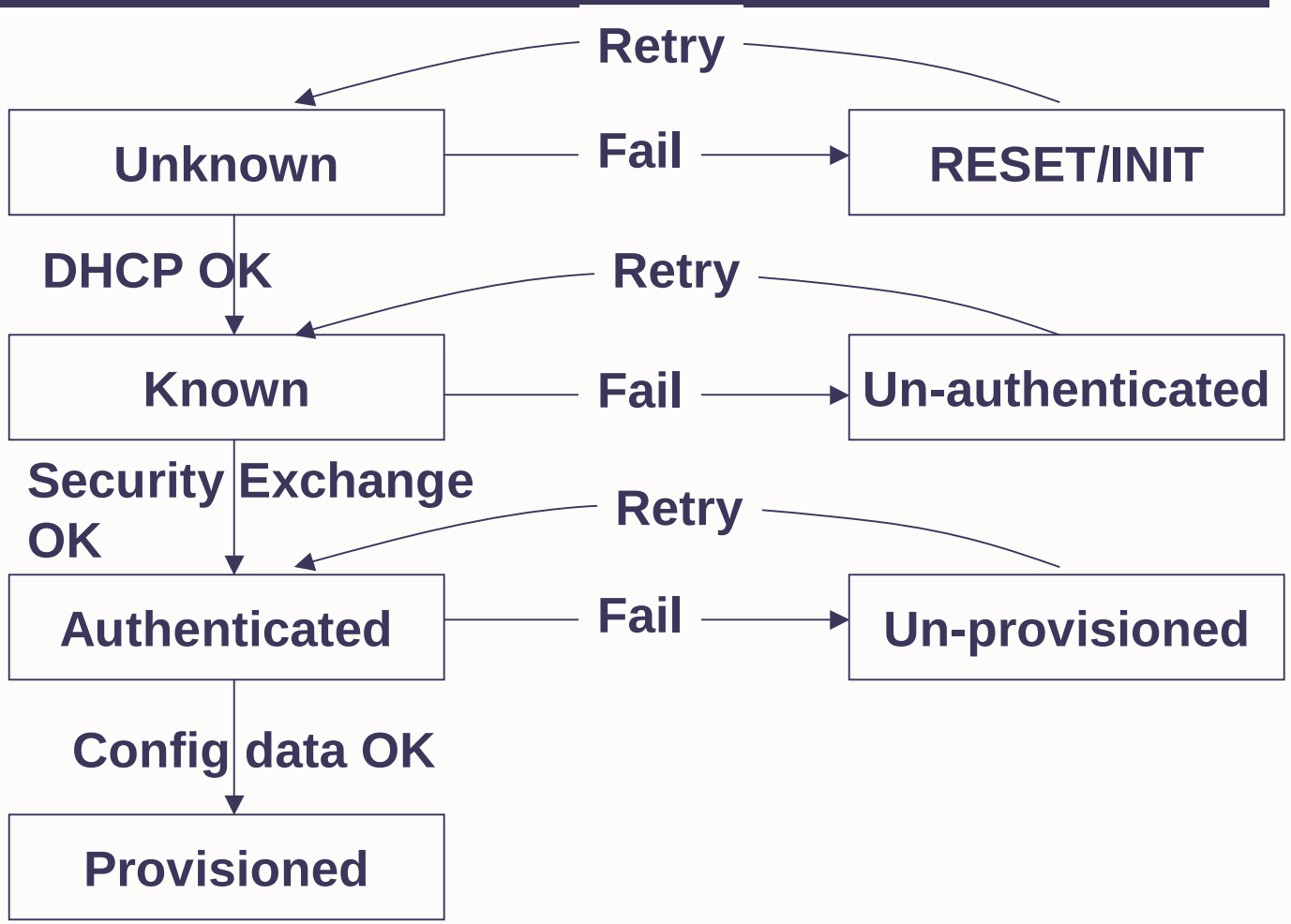
Example 1: DOCSIS Provisioning

- Data-over-cable service interface specifications
- Specified in PKT-SP-PROV-103-01121
- Specifies a PacketCable 1.1 embedded MTA (Multimedia Terminal Adaptor)
- Provisioning is a subset of configuration management control
  - Defining configurable data attributes
  - Managing defined data reporting
  - Resource initialization
  - Managing resource software and
  - Configuration data reporting

PacketCable 1.0 Network Component



MTA Provisioning States



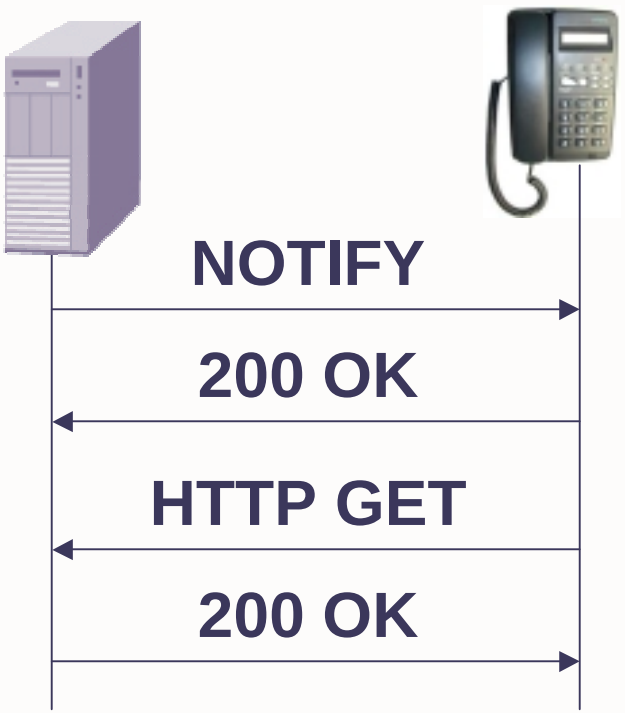
Example 2: Provisioning in SIP

- No standard is defined yet
- A proposal
  - SUBSCRIBE/NOTIFY methods for configuration
- SIP phones SUBSCRIBE a provisional server
- SIP phones use HTTP GET to download the contents
- The provisional server informs changed profile
- SIP phones use HTTP GET to download the update
- Provisioning file in xml

SIP Provisioning (Cont'd)

Enrollment and Initial provisioning

Update changes



Xml Schema for Provisioning File

ipDialog VoIPTone™

- ipDialog VoIPTone™ family of IP phones are very affordable OEM phones with SIP, H.323, MGCP and Megaco/H.248 support
- ipDialog demonstrated call set up among multiple protocols

- ipDialog will introduce IP phones with multiple protocol support
- User configuration by the web page in the phone
- User initiated provisioning by TFTP server
- Provisioning will implemented according to the standards when they are ratified
- Please visit www.ipDialog.com for more info