SyncML DM:
A SyncML Protocol for Device Management

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Outline

- What is device management?
- Who needs device management?
- The SyncML DM solution
- Expected SyncML DM 1.0 contents
- Coming soon: Software Management
What is device management?

Device management is a technology which enables the …

• customization,
• personalization, and
• servicing

… of personal devices such as wireless phones, personal digital assistants, and embedded technology in cars, houses, clothes, etc.

Remember the grasshopper metaphor...
Evolution, Part 1: 
*Past and present*
Evolution, Part 2:

*Present and future*
The New Math?

The new handheld device > pager + PDA + wireless phone + media player

The new car > car + PDA + security system + media player + wireless phone

The new home > appliances + security system + HVAC + media system + broadband gateway

Services make the new total greater than the sum of the parts!
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Who needs device management?

Owners and users of devices.

Enterprises.

Service providers.

Carriers.
Consider device users

Owners and users of devices need device management.

• Cannot do their own system administration.
• (And they do not want to!)
• Want instant access to new services.
• Want service “over the air”.
• Want service quality guarantees.
• Want instant gratification.
Consider enterprises

Enterprises need device management.

- Increase employee productivity.
  - from "communicate anywhere, any time"
  - to "work anywhere, any time"

- Extend IT services.

- Maintain security.
  - confidentiality
  - access controls
  - resource usage
Consider service providers and carriers

Service providers and carriers need device management.

• Deploy revenue-generating services
  • client software and settings
• Upgrade the user experience
  • personalized devices
• Increase customer satisfaction
  • “over the air repair”
• Provide that instant gratification
  • immediate access to
    • services
    • data
  • no matter where the customer roams
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The SyncML DM Solution

Design in progress…

*Expected public availability: March, 2002.*

- Based on SyncML
  - leverages SyncML client software investment
- Compact, efficient
  - designed with wireless applications in mind
- Extensible
  - to new devices and device components
  - to new actions as well
- Supporting further standardization
  - in WAP Forum
  - in 3GPP
  - in OSGi
Scenario 1: Employee intranet access

Employer (Enterprise) installs client applications and Virtual Private Network (VPN) software, as well as credentials for the individual.

• **Software Distribution**
  - applications, e.g. sales or inventory tools
  - system software, e.g. VPN

• **Parameter configuration**
  - databases for sales or inventory tools
  - VPN configuration, e.g. proxy servers

• **Personalization**
  - employee’s account information
  - employee’s VPN credentials
Scenario 2: Customer media subscription

Service provider offers audio, video, game subscriptions. Customer signs up.

- **Device capability verification**
  - server reads device make, model, etc.
  - determines media rendering capabilities
- **Parameter configuration**
  - media servers and other network configuration
  - media types and formats
- **Personalization**
  - customer’s account information
  - customer’s credentials for media access
Scenario 3: “Over the air repair”

Customer/employee reports a problem to a customer service representative.*

• Device configuration verification
  • server reads device make, model, etc.
  • server reads current parameter settings

• Parameter configuration
  • administrator views settings, initiates changes
  • server changes those parameter values on device

• Real-time validation of repair
  • device user can then verify the solution

*Better: The management system detects the problem automatically through periodic examination of self-test or other diagnostics.
**Scenario 4:**

**Network and service quality management**

*Device operating data and/or diagnostics are used in network administration or service quality management.*

- **Network and service access measurement**
  - server reads device logs (passive measurement)
  - server invokes on-device measurement tool

- **Parameter configuration**
  - server tunes device operating parameters
  - e.g. move some devices to lightly loaded proxy

- **Pro-active problem determination**
  - server notices dropped connections, weak signal or slow response times before they impact the user’s experience
Example protocol flow

Using the web browser on his refrigerator(!), this customer is signing up for a grocery delivery service. An order entry program will be installed on his device in real time.

Software is installed and configured. Customer is happily using the new service a few minutes later.
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Expected SyncML DM 1.0 contents

- **Security framework**
  - confidentiality*, integrity of messages
  - two-way authentication
  - access rights (authorization)

- **Multiple bearers**
  - HTTP, HTTPS
  - WAP, WTLS
  - OBEX (e.g. on infrared, Bluetooth, serial)
  - SMS (notification only)

- **Parameter/configuration management**
  - ADD, REPLACE, DELETE, COPY

- **Extensibility**
  - “management objects” describe what is manageable
  - invoke local executables

*Not available on all bearers.*
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- **Distributing software**
  - MExE (3GPP-defined run-time)
  - OSGi (another standard run-time)
  - native

- **Software “inventory”**
  - What is installed?
  - What is configured/operational?

- **3rd party software parameters/preferences**
  - SyncML DM parameter management can be used by 3rd party applications loaded into MExE, OSGi, other run-times
Conclusion

- SyncML DM is coming in 2Q02!
  - For wireless and wire-line devices
  - For consumer and employee devices

- The SyncML Initiative is working with other standards bodies on device management

- Look for SyncML DM on
  - wireless phones
  - personal digital assistants
  - embedded computing devices