



# **SyncML DM:**

## **A SyncML Protocol for Device Management**

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SyncML Master Class  
Amsterdam  
28 January 2002

# 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*

SyncML



# 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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## Coming soon: Software Management



- **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