

# **SyncML DM:**

# A SyncML Protocol for Device Management

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SyncML Master Class Amsterdam 28 January 2002



- ➤ 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.



# **Evolution, Part 1:**Past and present







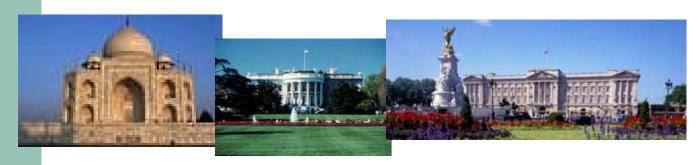






# **Evolution, Part 2:**Present and future













#### 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

<sup>\*</sup>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