Mobil webszerverek

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Előzmények

- Klassz lenne, ha a mobiltelefonon web szerver is futna?
  - nem igazán akadály a CPU (>100MHz), a memória (>10MB) és a sávszélesség (>43kbps) már 2004-ben sem
  - web böngészőből látnánk a telefonunk tartalmát, vagy másokét, pl.: http://gipsz.jakab.mobilweb.hu
- És milyen web szerver legyen az?
  - butuskák: Mobile Web Server on PocketPC, SmallServ, VS Httpd, EPOCHTTP
  - Apache a Symbian-on: ez már valami lenne
- És mire lenne ez jó?
  - képek megosztása, SMS olvasás/küldés PC-ről, üzenetküldés, távszerviz, stb.
  - hadd gondolkodjanak rajta mások is!

Nokia mobil webszerver

- Apache Symbian-on + HTTP gateway megoldás
- Open source
  - http://research.nokia.com/research/projects/mobile-web-server/
  - http://sourceforge.net/projects/raccoon/
- Johan Wikman és Dózsa-Rácz Ferenc, Helsinki

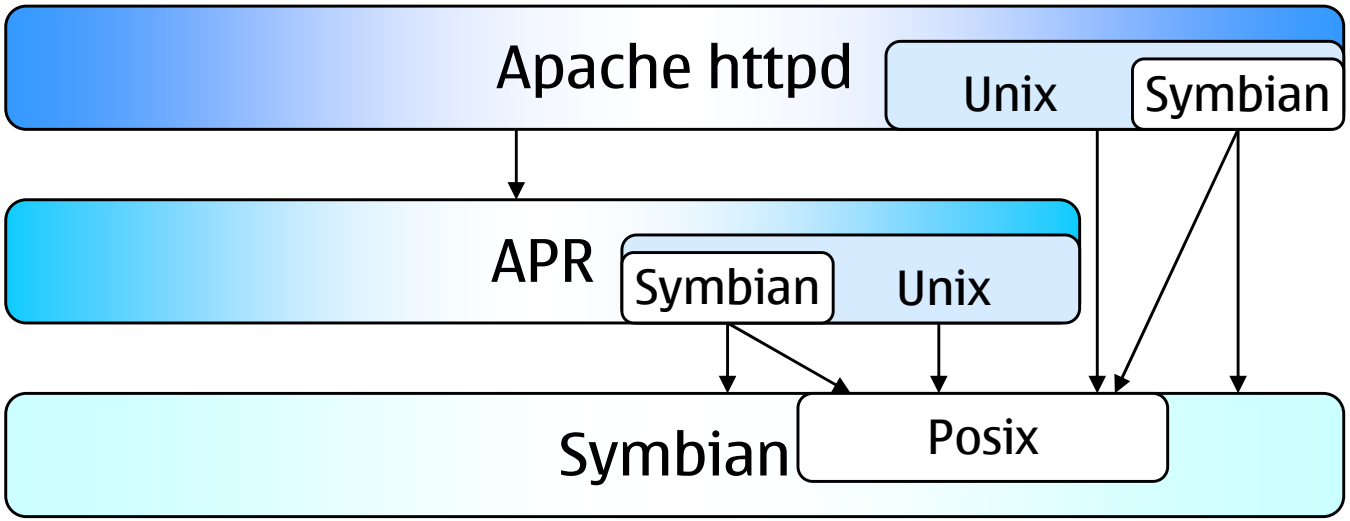
Apache on Symbian/S60

By courtesy of Johan Wikman
Nokia Research Center

Presented on EuroOSCON 2006
18–21 September 2006, Brussels, Belgium

Apache on Symbian

- Apache runs on top of *Apache Portable Runtime*.
  - Port/implement the platform specific parts of both and you're done.
- Direct implementation of APR on top of Symbian native constructs would have been prohibitively expensive in terms of required time and effort.
- Instead, the current port is implemented using Symbian's Posix library and is based on the generic Unix implementation.



Modules

- Many modules build out of the box.
  - mod_alias, mod_auth, mod_autoindex, mod_dav, mod_dav_fs, mod_dir, mod_log_config, mod_mime, mod_rewrite, mod_setenvif
  - Unless some external functionality is needed, it's likely that a module builds.

- Most important – mod_python.
  - Some modifications needed to make it work with *Python for S60*.
  - Alleviates the lack of dynamically loadable modules.

Connectivity

By courtesy of Johan Wikman
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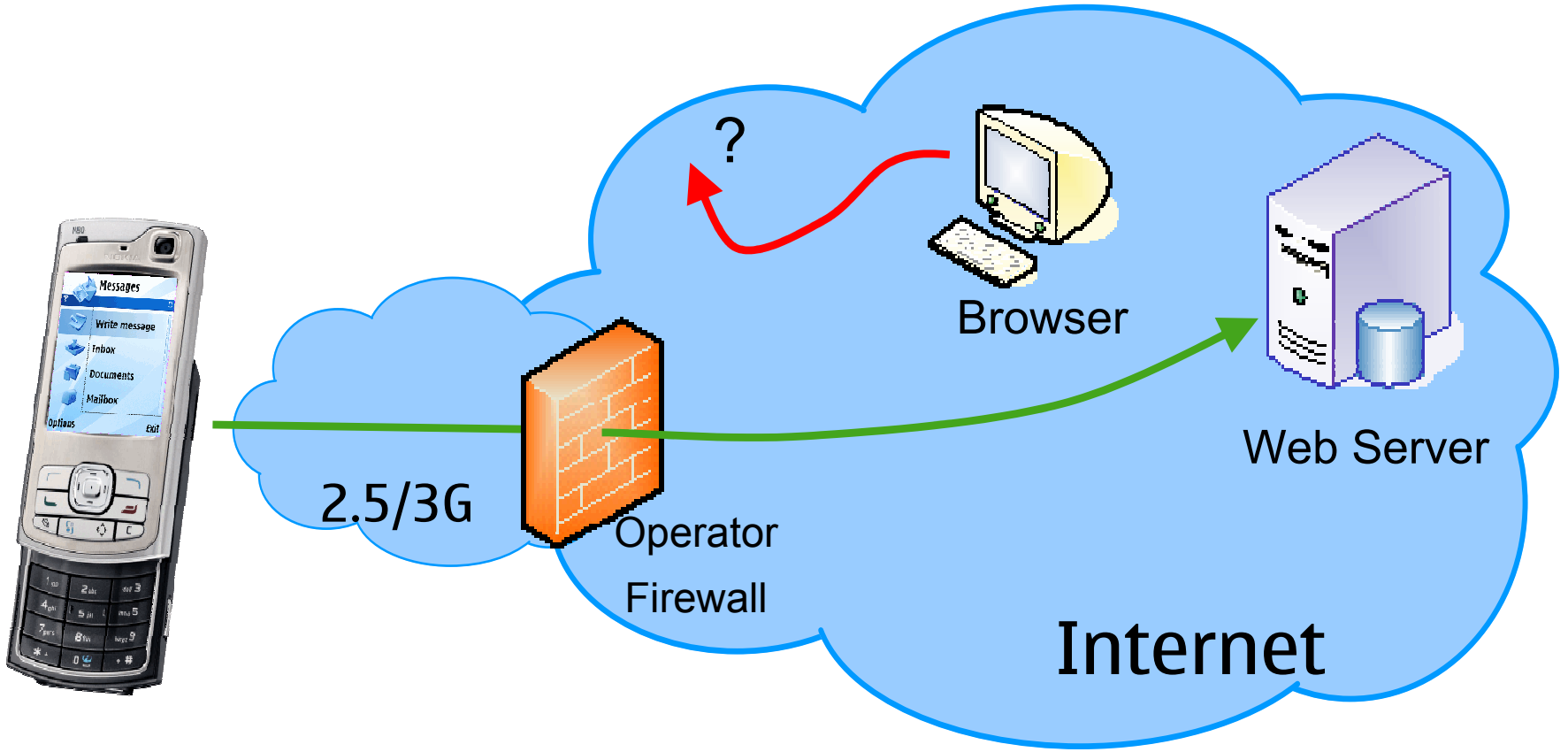
The Basic Problem

- There are NATs/Firewalls between the terminal and the Internet.
- That is, the terminal does not have a name and you can't reach it.



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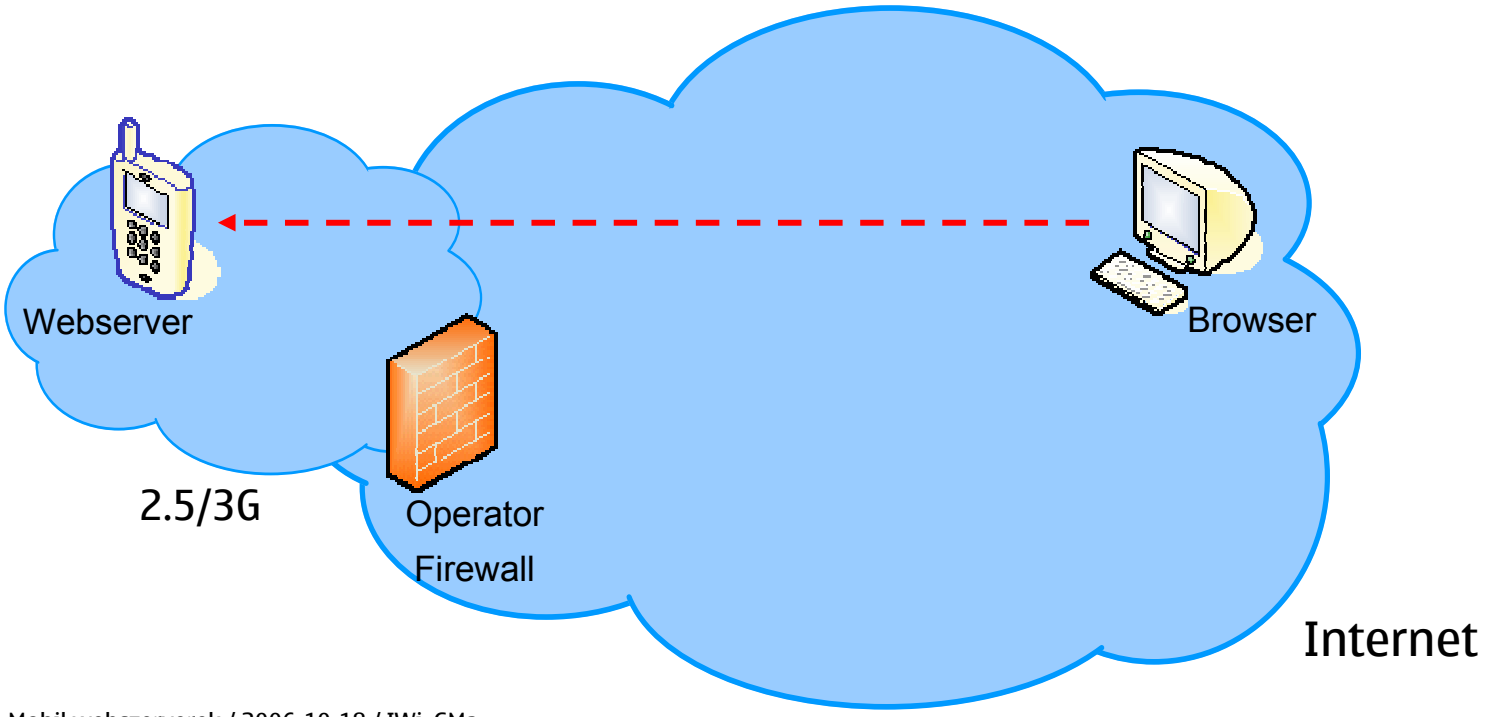
The Illusion

- Web server on mobile phone accessible from any regular browser.
  - Millions of compatible clients – no modifications of any kind needed.
- For the person browsing, the web browser, the web server and the phone owner, it appears as if there would be a direct connection.
- Catchphrase: The mobile phone becomes a full member of the web.



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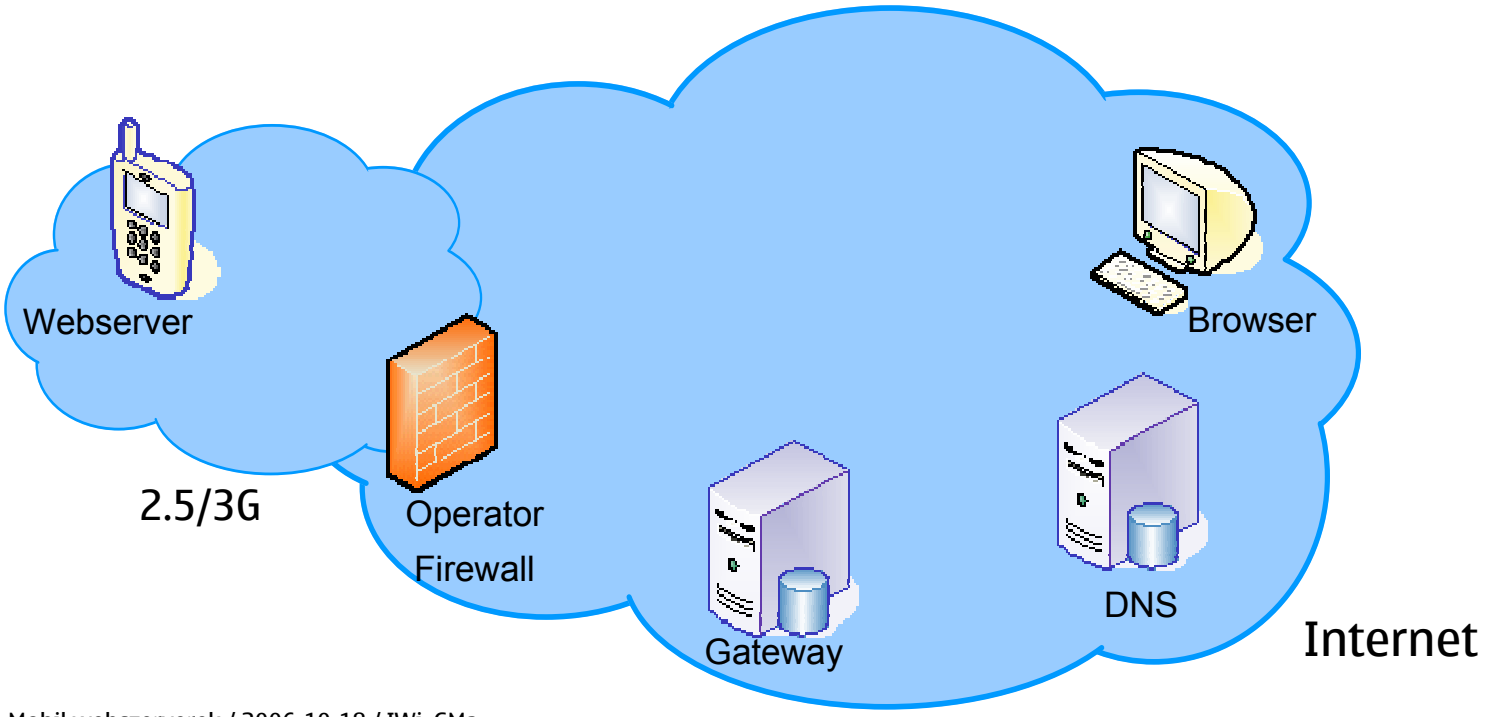
An Extra Level of Indirection

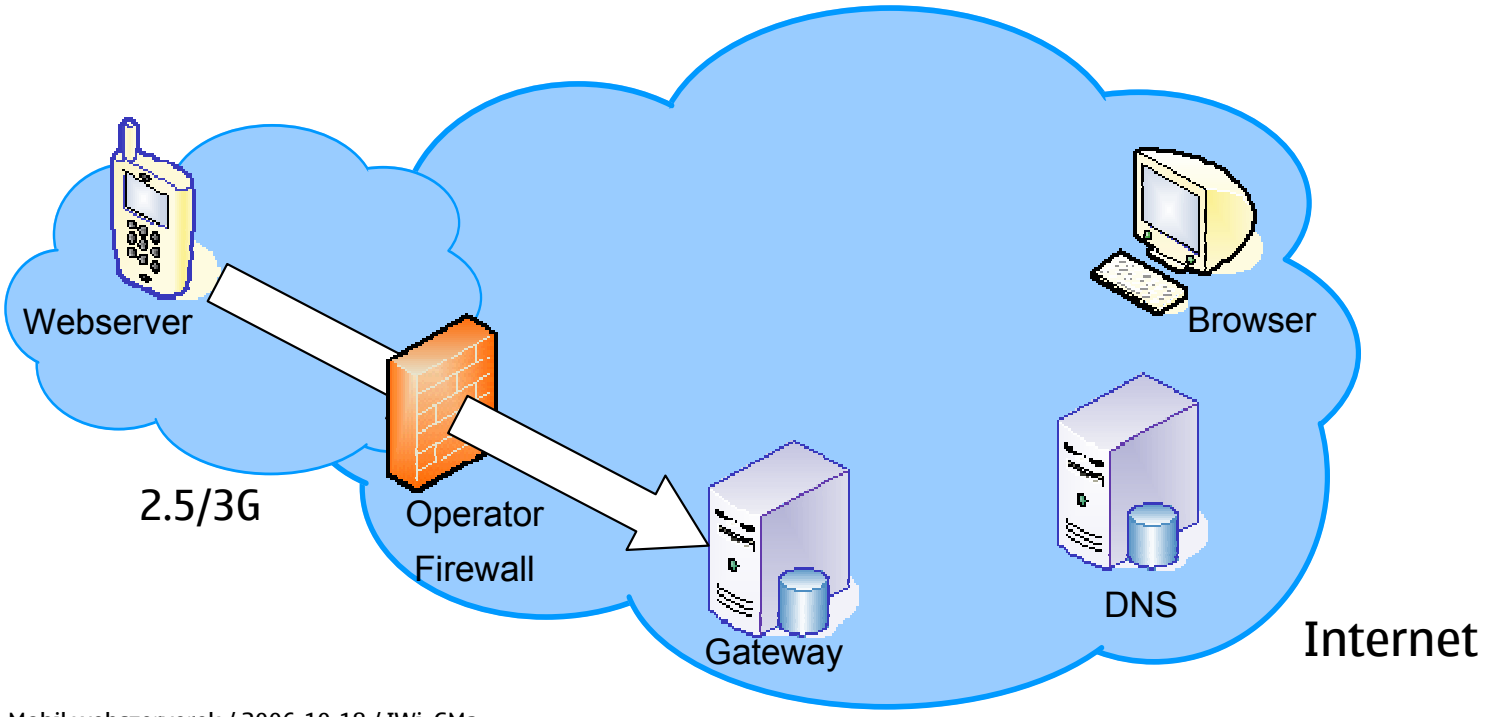
- Gateway on the Internet, running on a computer with a static IP.
  - In our case 212.213.221.246.
- A DNS mapping **`*.at.openlaboratory.net -> 212.213.221.246`**.
  - **`john.at.openlaboratory.net -> 212.213.221.246`**
  - **`bob.at.openlaboratory.net -> 212.213.221.246`**



Going Online

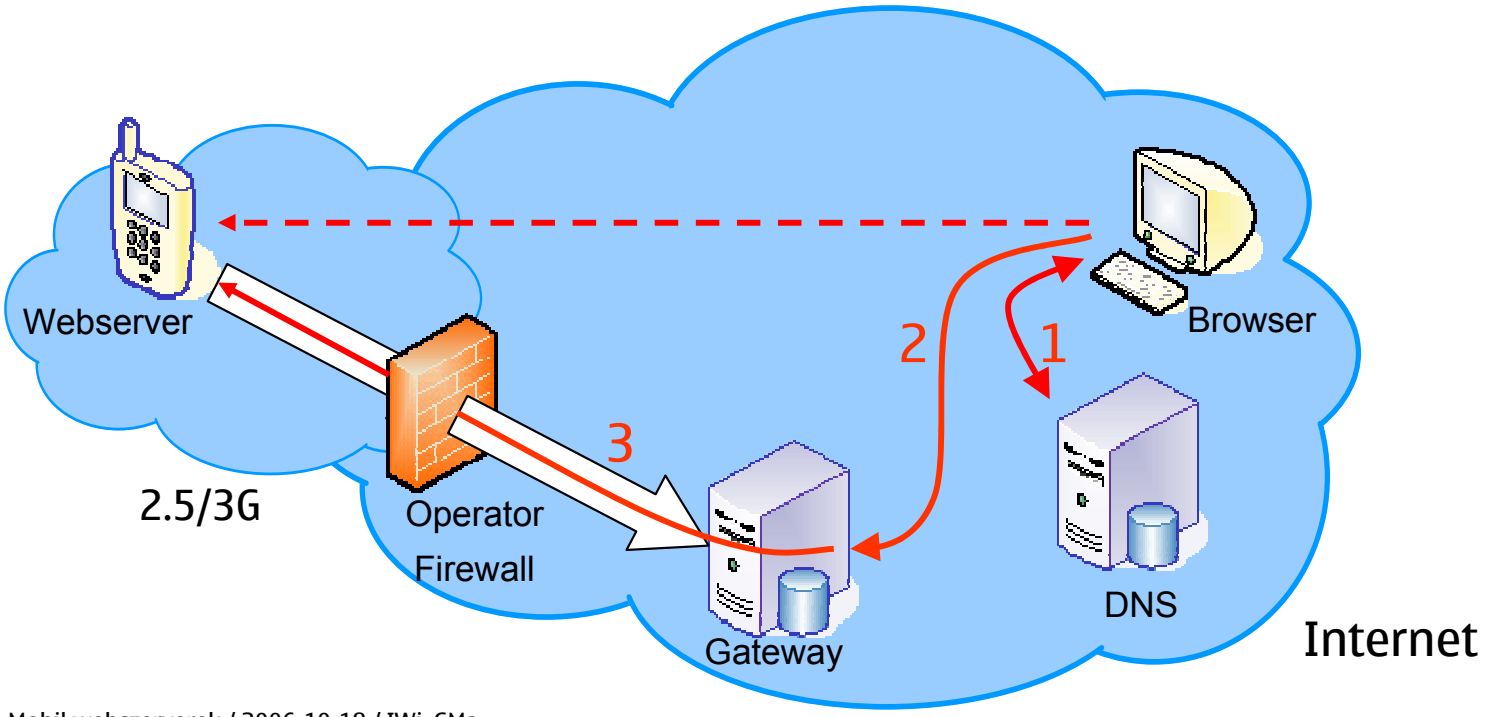
- The terminal connects to the gateway and identifies itself, e.g. at *john*.
  - An account must exist at the gateway.
  - The connection exists for the entire time the terminal is online.

- The terminal is now known as http://john.at.openlaboratory.net.



Browsing

- DNS lookup of *john.at.openlaboratory.net* resolves to the IP address of the gateway computer (1).
- HTTP request delivered to the gateway (2).
- From the HTTP request headers, the gateway can deduce who the request is intended for.
  - Host: john.at.openlaboratory.net
- The gateway delivers the request of the connection opened by the terminal (3).



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Mobile Websites — Mobsites

By courtesy of Johan Wikman
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Personal Mobsite

Most recent photo taken.

Search your mobsite

Nice to know.

Received text messages.

By courtesy of
graham[at]pixel8limited.com

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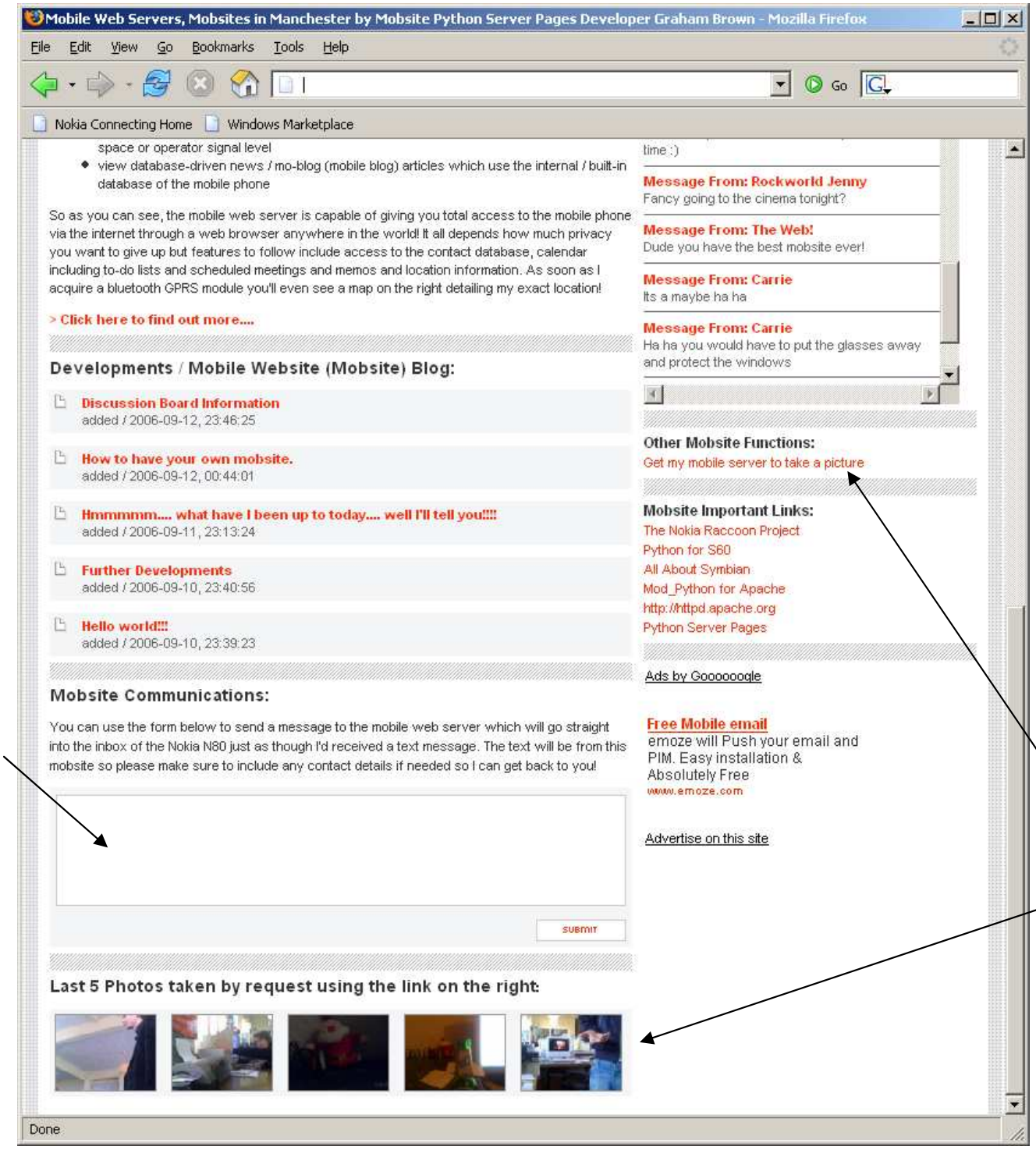
Personal Mobsite



Integration of the mobile phone and the web.

Web-form for sending messages directly to the inbox of the phone.

Interactively generated content.

By courtesy of
graham[at]pixel8limited.com

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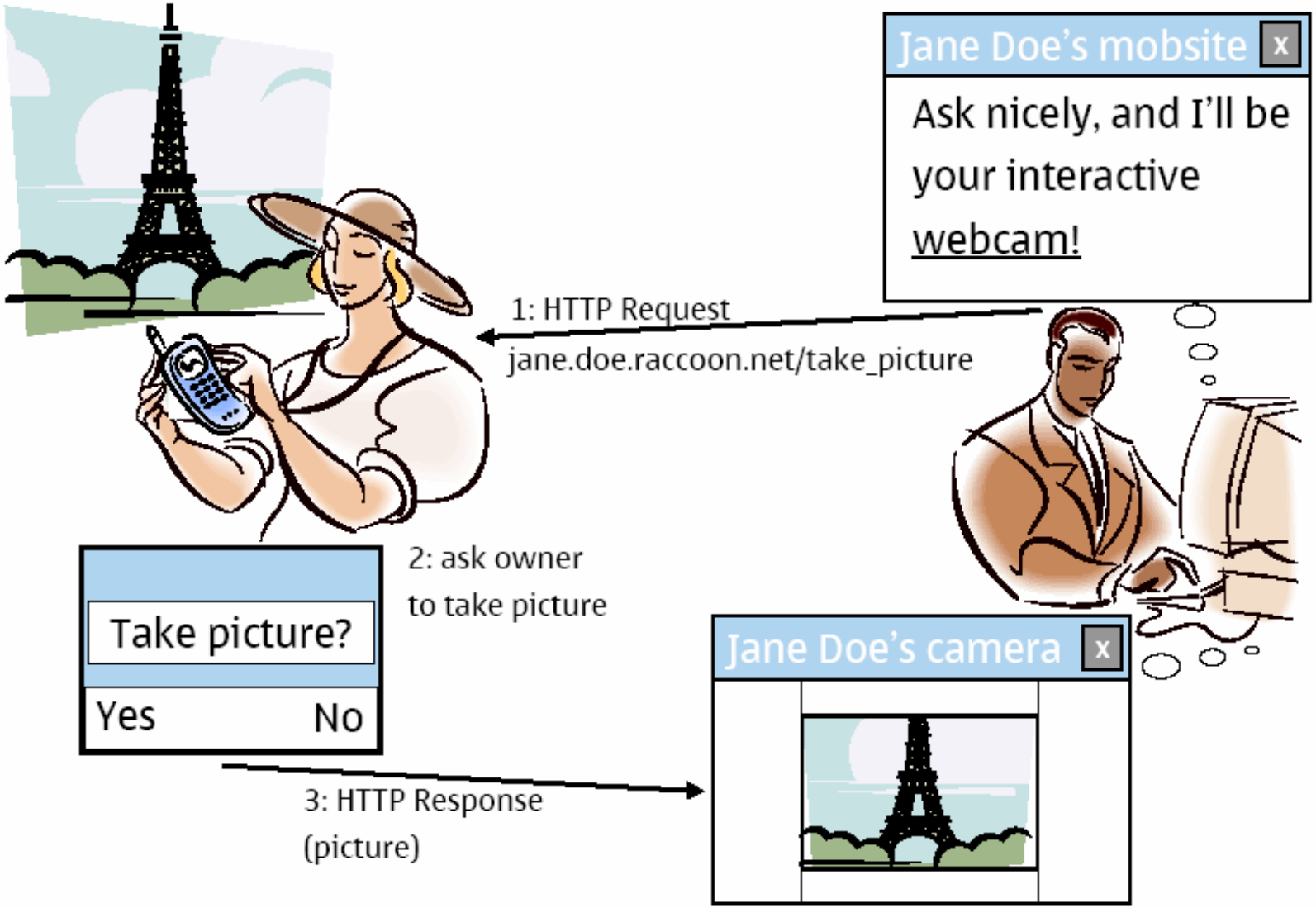
Interactive Content - Example



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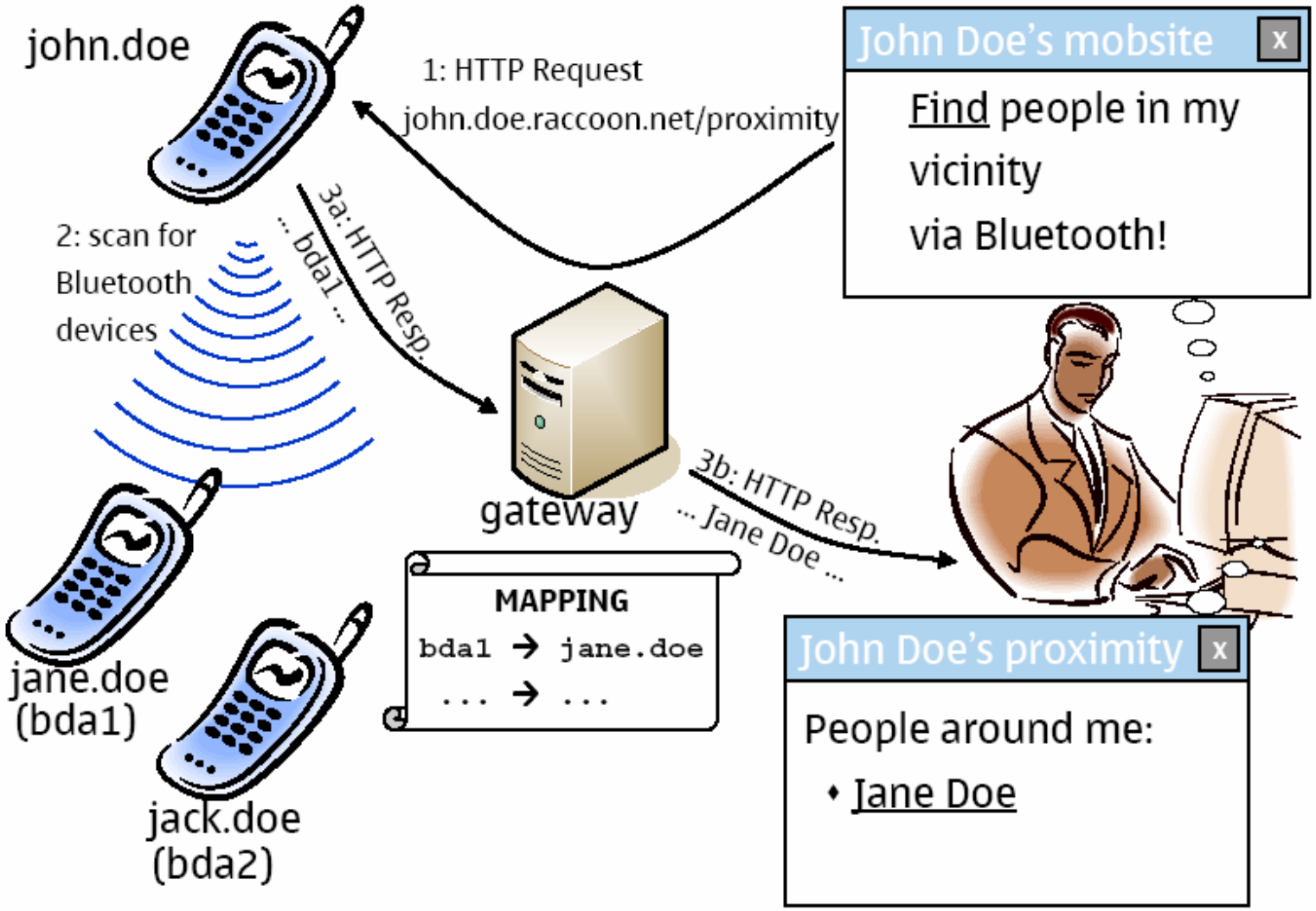
Linking by Proximity – Mobsite Hopping



- A new way for linking websites – they are related *at this moment* because they geographically happen to be nearby each other.

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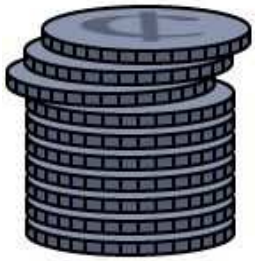
Hogyan tovább?

Hogyan tovább?

- További lehetőségek
  - web UI a telefonhoz
  - Webszolgáltatások (Web Services) a telefonon
  - üzenetküldés telefonra
  - stb.
- Kihívások
  - költségek
    - adatforgalom
    - áramfelvétel
  - hozzáférés korlátozás (vö. költségek)
    - webszerver adminisztráció
    - kliens identitás
  - elérhetőség (~~24/7~~)
  - teljesítmény



Demo...