



IBM Research

IBM mobile health toolkit: mobilizing healthcare

Dr Dirk Husemann, Dr Mike Nidd
Mobile Computing
Zurich Research Lab



2004-06

© 2004 IBM Corporation

mobile health care: why go mobile?

- **Monitoring patients in the community**
 - Long-term patients, early release patients, elderly patients, young patients
 - Medication compliance/adherence monitoring
 - Symptoms monitoring
- **Healthcare professionals**
 - On-the spot patient record updating
 - Direct patient data input
- **Self Monitoring & lifestyle**
 - Help consumers take an active part in their well-being/disease
 - Caring for relatives
- **Objectives:**
 - Improve data quality and availability
 - Improve quality of life for patients
 - Reduce costs

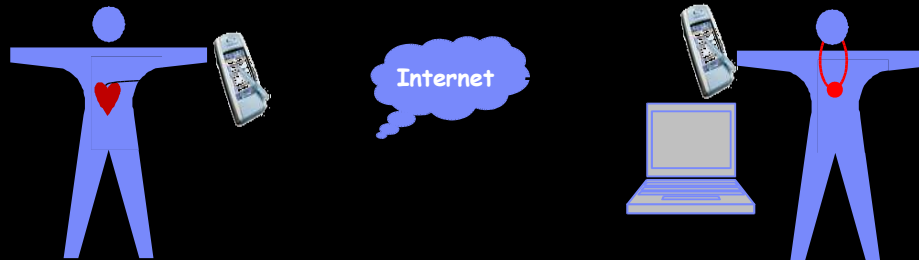
mobile health care enables...

Peace of mind
Self-monitoring for
patients and family

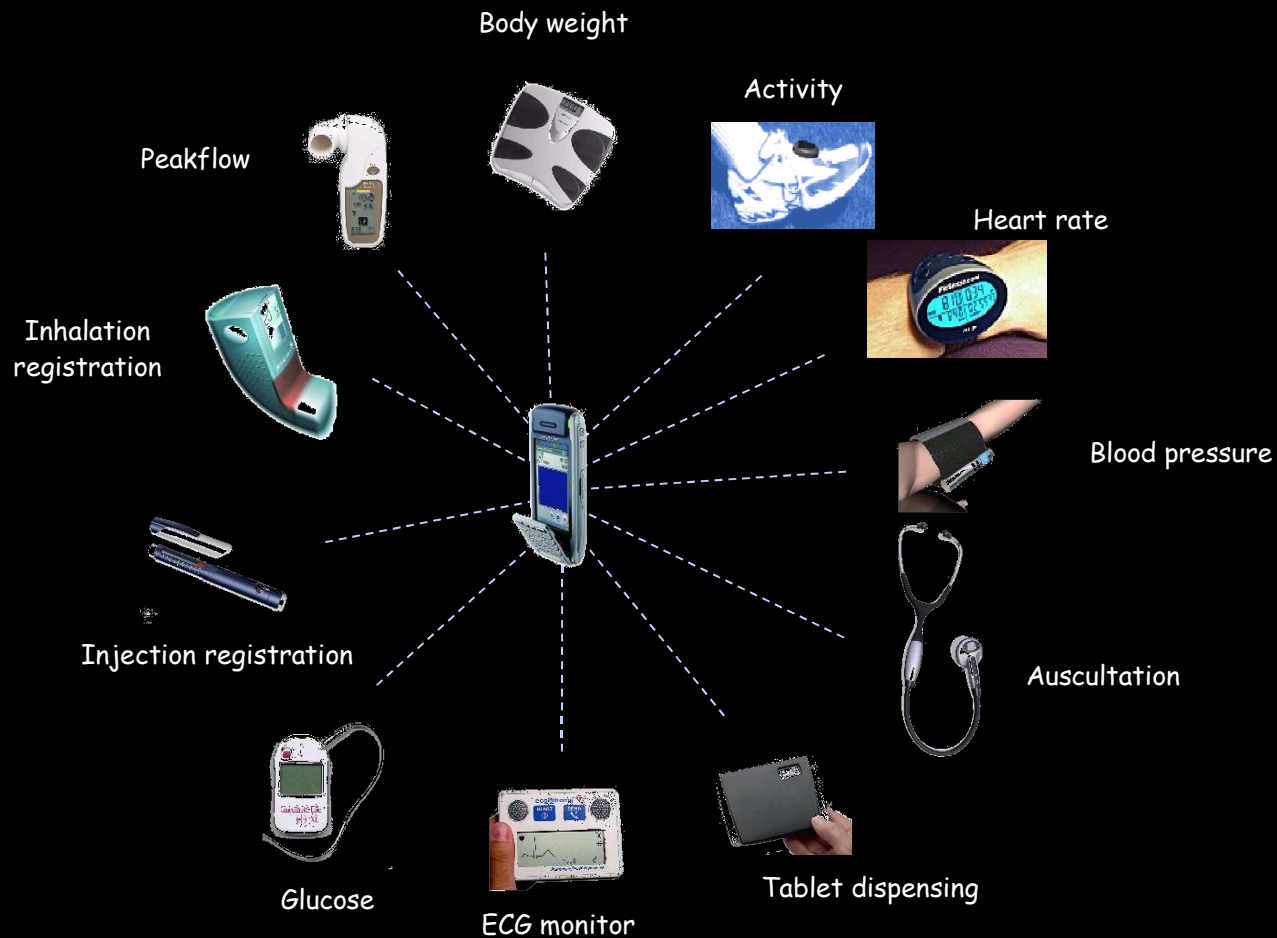
**Improved monitoring &
intervention**
For doctors

Early intervention
Cost reduction for health
insurers and health services

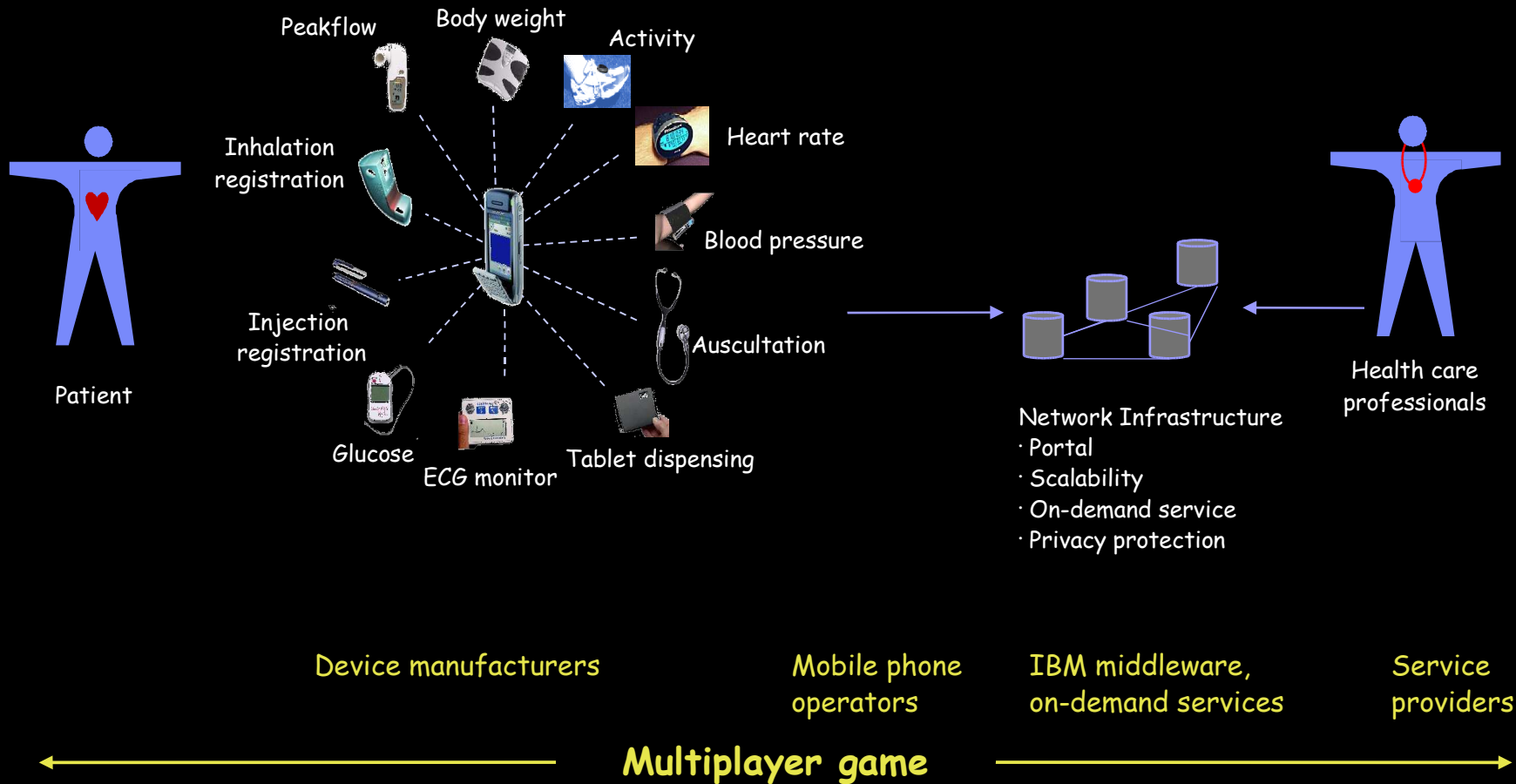
Comprehensive care
Cross-illness care



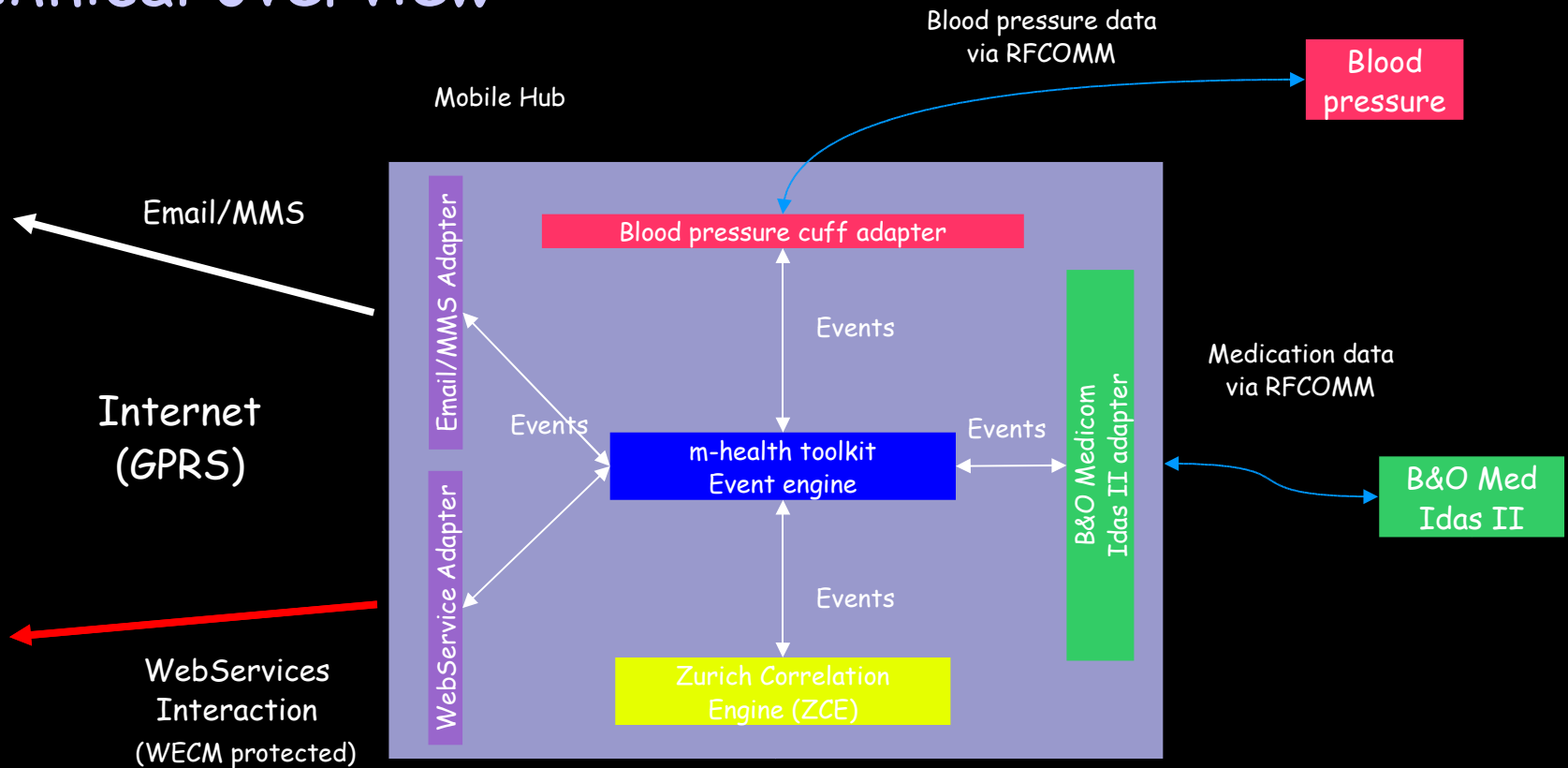
IBM mobile health care toolkit: open platform & ecosystem



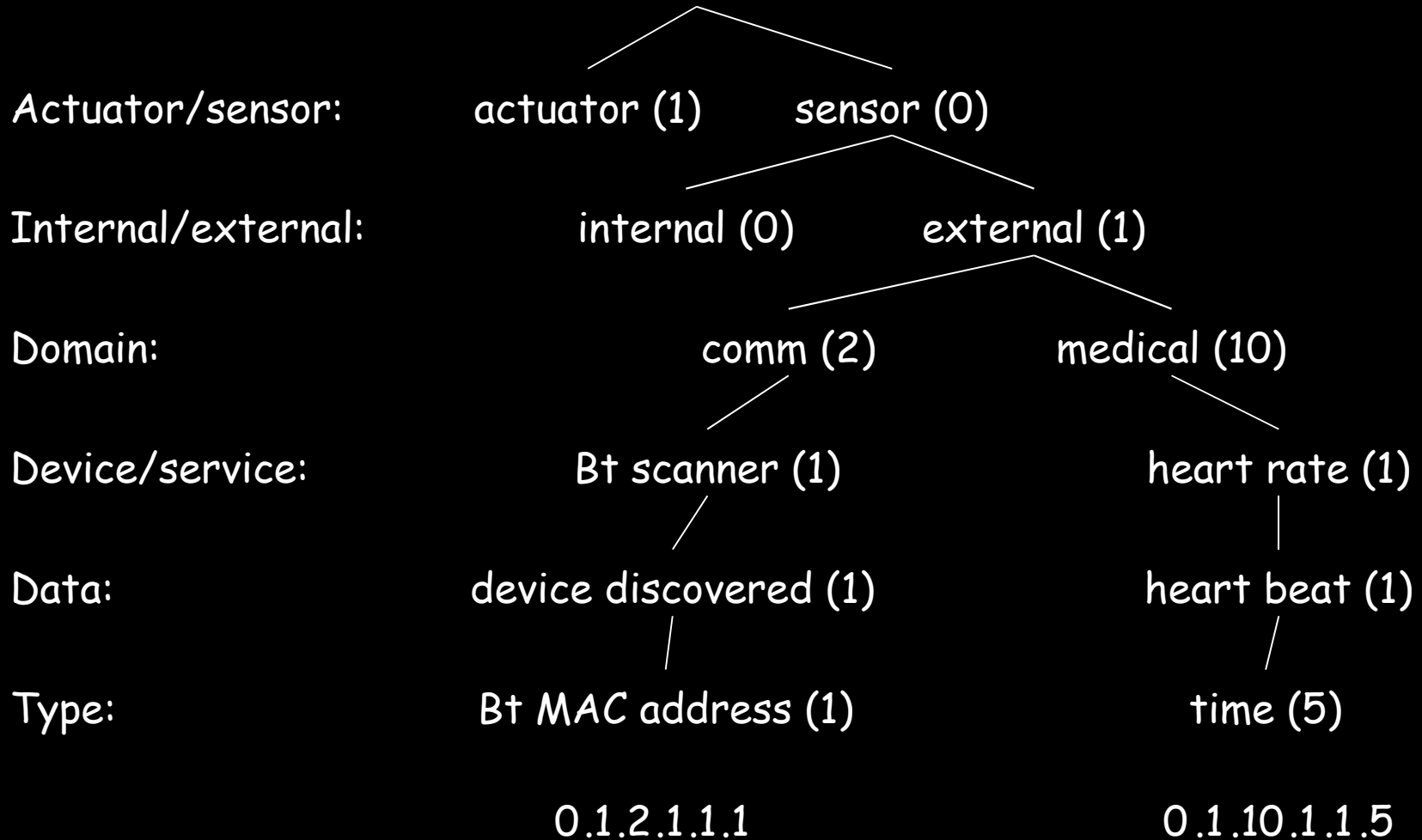
IBM mobile health care toolkit: service platform



technical overview



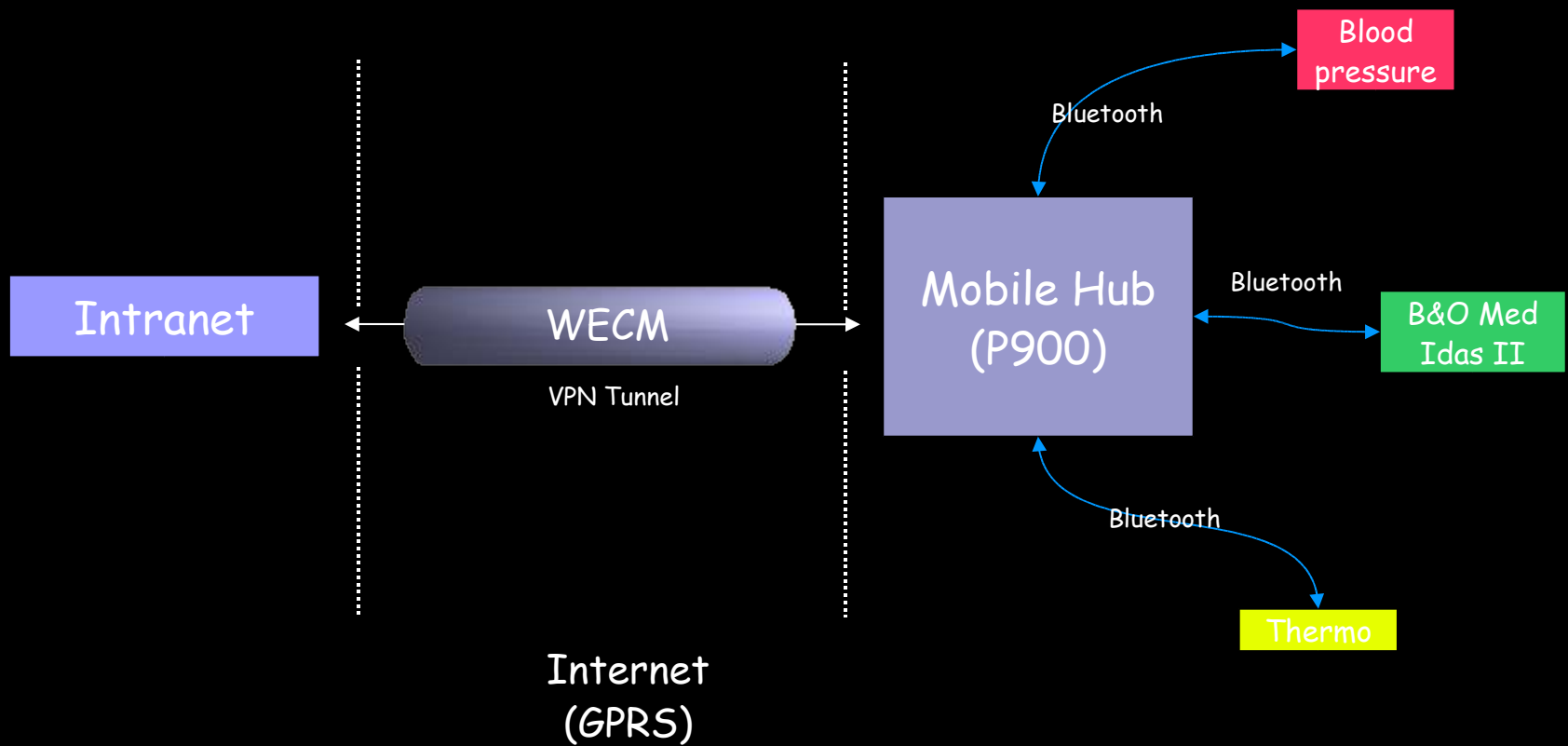
event hierarchy



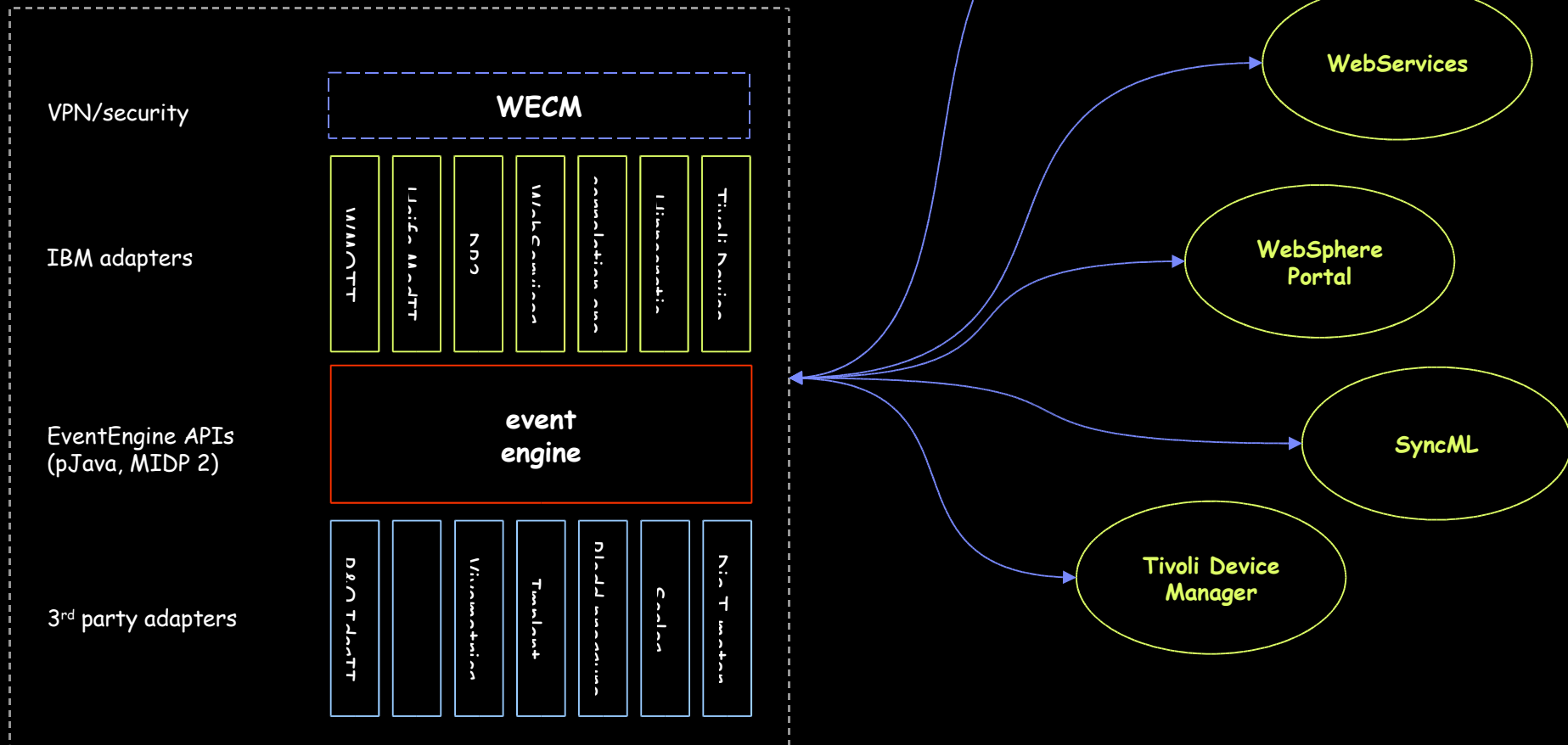
event model

- **Hierarchical, self-identifying**
 - Tuple addressing
 - Time stamped
 - Book-keeping information
 - Length, annotations, offsets,...
- **Sensor & actuator events**
 - Sensor: data
 - Actuator: commands
- **Future proof**
 - Tuple addressing allows filtering
 - Skip unknown events or subfields
- **Event envelope: container**
 - Bundling events from same source
- XML representation
- **Compact binary encoding**
 - Preserve bandwidth (OTA, memory)
 - Enable fast parsing

protecting mobile health care data



feeding the infrastructure...



mobile hub devices



- Linux phone (Motorola A760)
- Linux, GSM/GPRS, Bluetooth

...or...



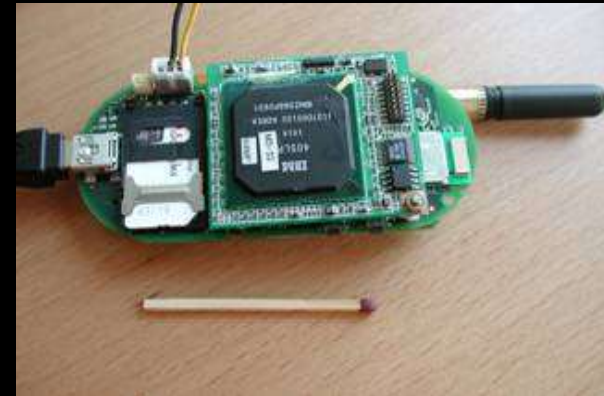
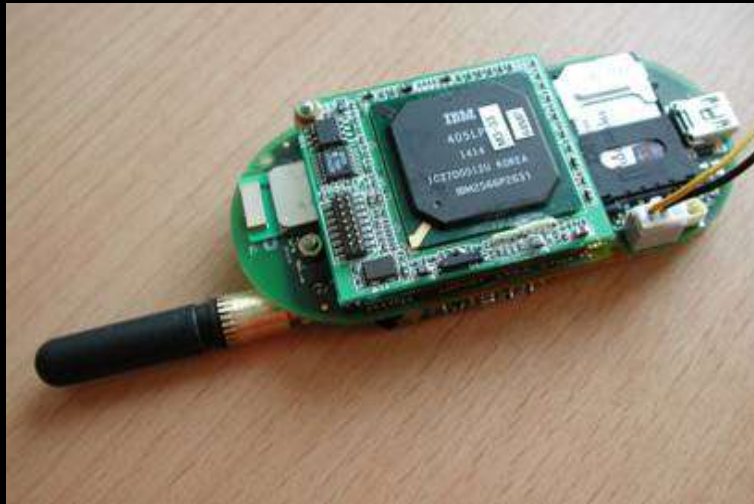
- SonyEricsson P800
- Symbian, GSM/GPRS, Bluetooth

...or...

- HomeGW
- OSGi, Java

...or...

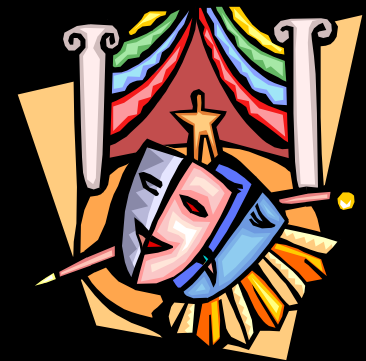
another possible hub...



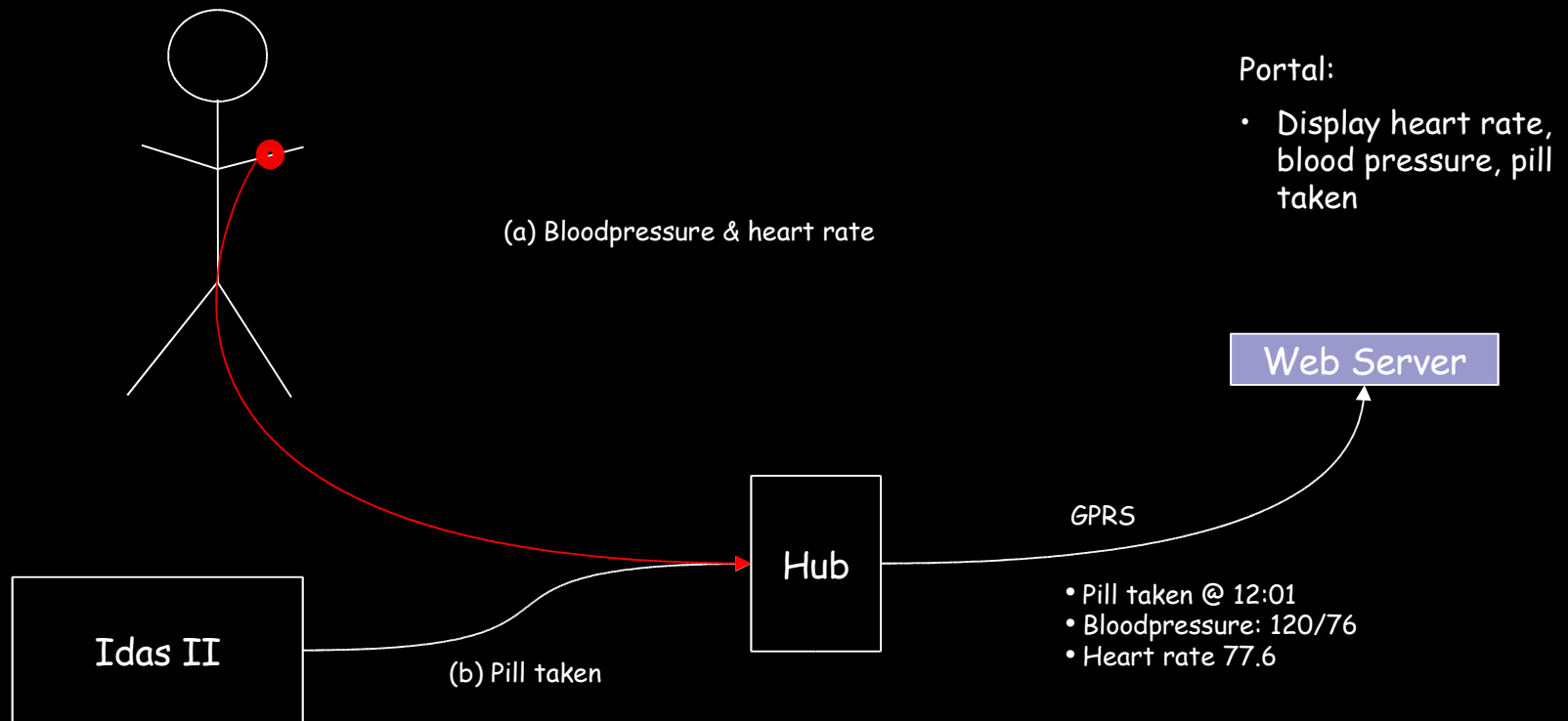
Design from IBM E&TS:

- PPC405LP, CSR bcore02, Siemens MC45

IBM mobile health care demo



demo scenario



contacts & further information

→ Dirk Husemann (hud@zurich.ibm.com)