

Benefits of metalanguages for rolling out natural language applications

B204 – The role of standards

Orange Labs

Jean-François GYSS, ergonomics voice and multimedia expertise, Research & Development
March 11th, 2008 , presentation for Voice Search Conference 2008 – San Diego



unrestricted



summary

1

use case : the 800 service
HD sound Voice Selfcare for DSL VoIP lines

2

A well known n-tier architecture
and well known standards

3

tools and methodology for NL development,
deployment and maintenance based on standards

1.overview of the 800

open in France since October 18th
2007

the 800 service features

- a voice selfcare for VoIP lines
 - fully automated, available 24-7
 - accessible from any network
- used to configure telephony services
 - call forward (*always* or busy, and no response)
 - permanent Calling Line Identification Restriction (CLIR)
- supports Natural Language interactions or DTMF access
- with g722 (wideband) or g711 (narrowband) codec negotiation
- also accessible easily from an associated mobile
 - no explicit credentials required on future calls when the mobile has been associated to a VoIP line

typical scenario at home when calling the 800



Welcome to the 800 service,
how may I help you ?

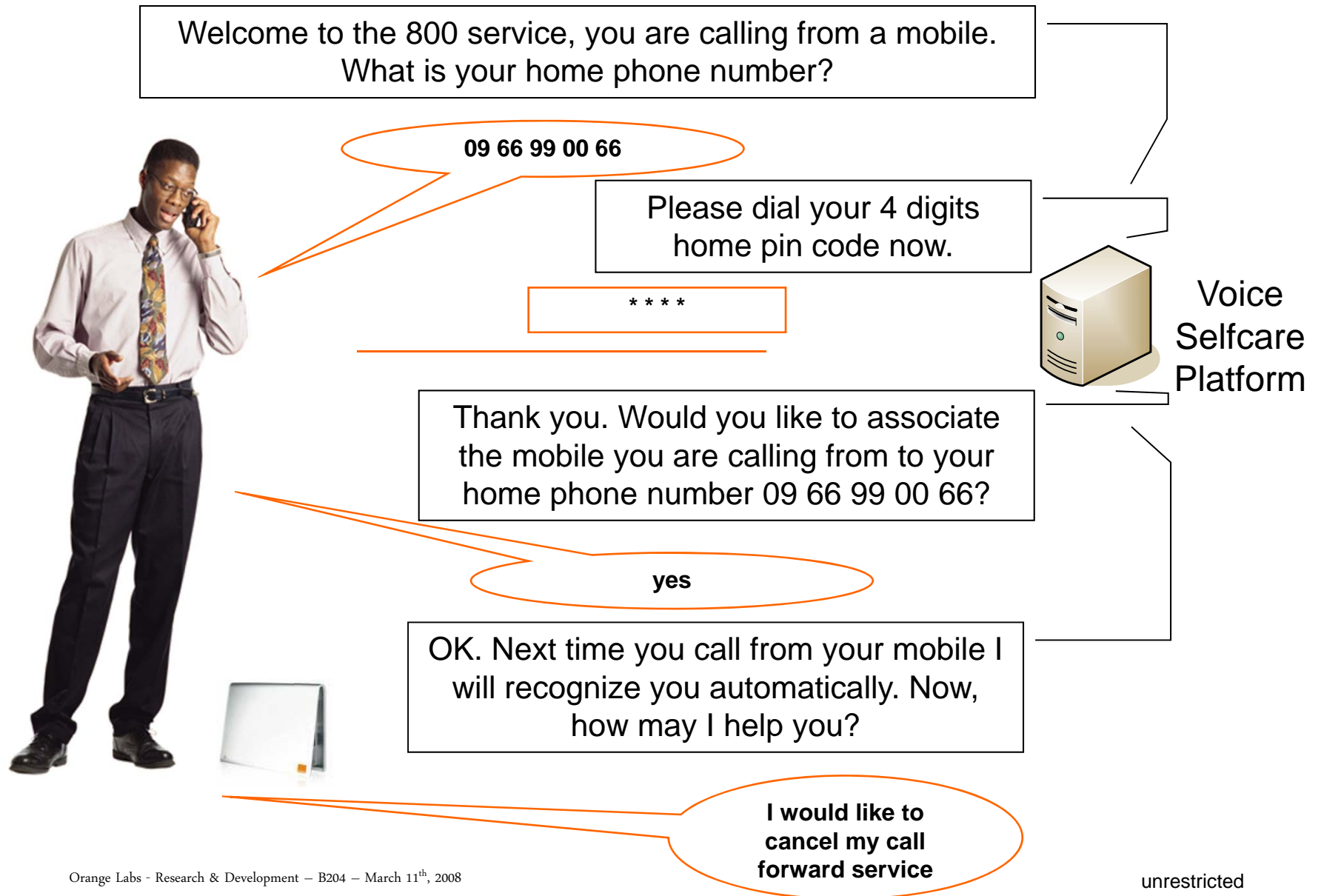
Could you please
forward my calls
to my office ?

Sure, your calls are now
forwarded to your office
number:
02 96 05 14 24.



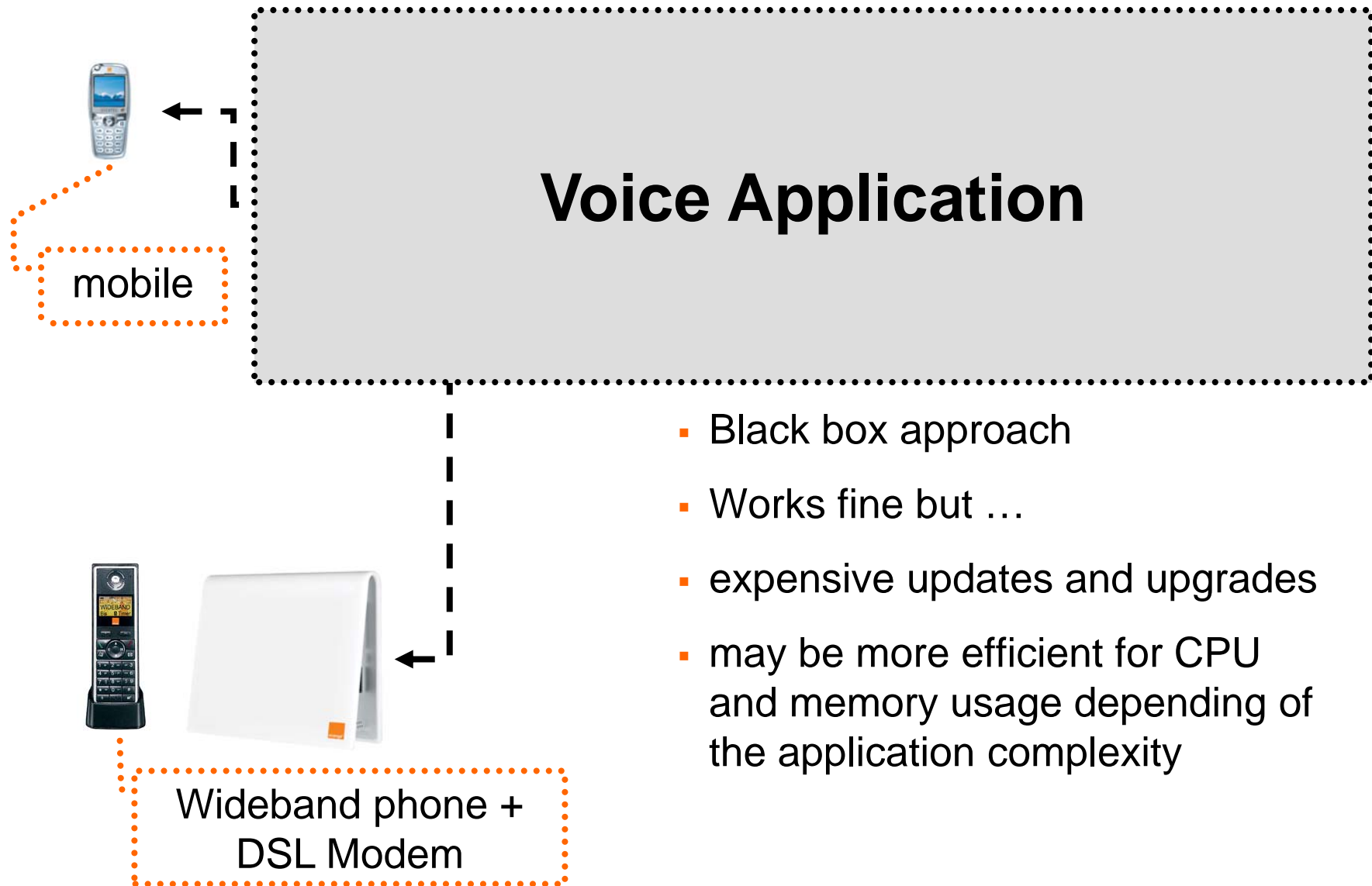
Voice
Selfcare
Platform

typical scenario from a mobile



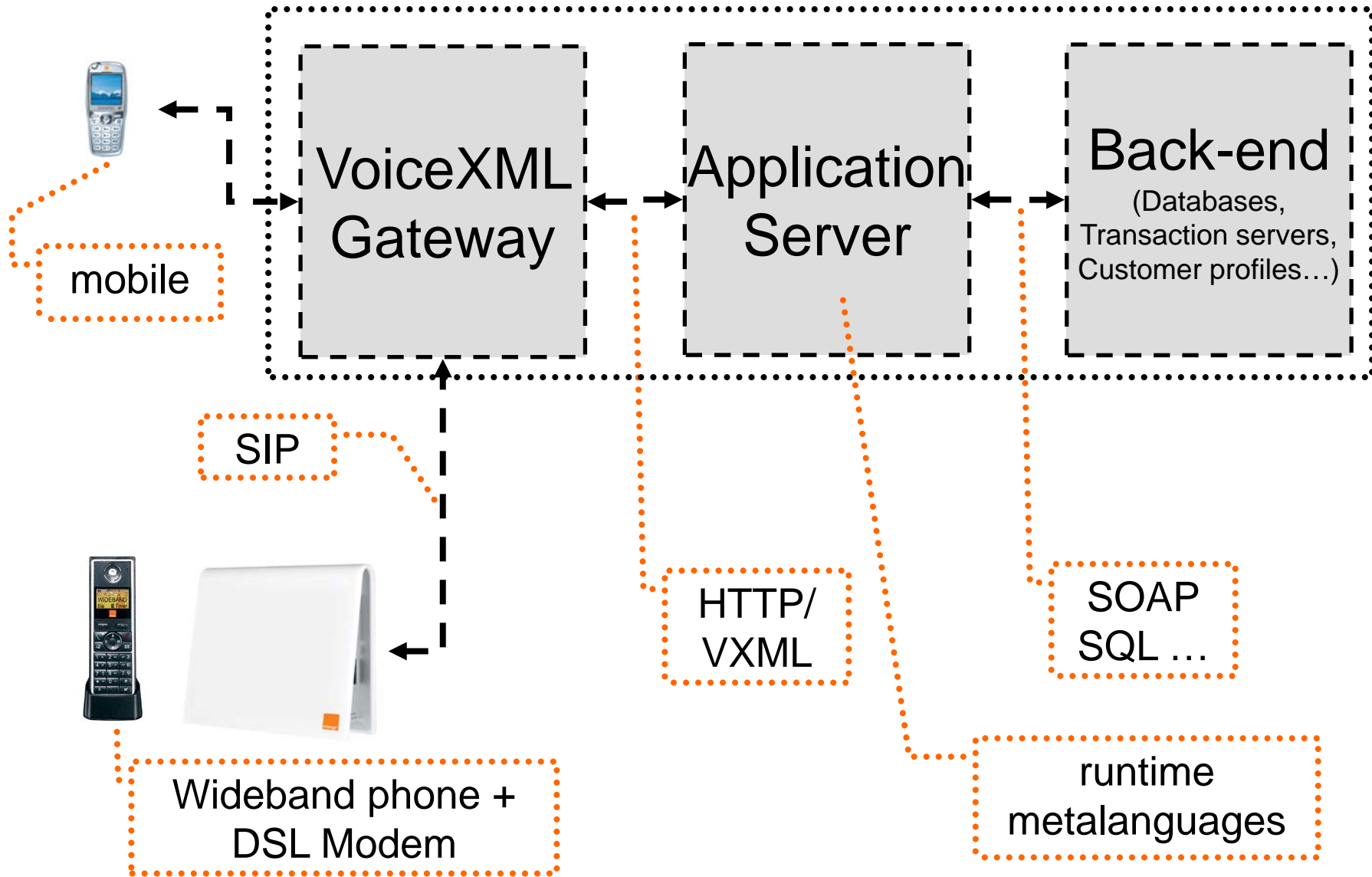
2.well known architectures and standards

The old monolithic approach



- Black box approach
- Works fine but ...
- expensive updates and upgrades
- may be more efficient for CPU and memory usage depending of the application complexity

A well known n-tiers architectural model



key elements used for the 800 ?

- VoiceXML 2.0
- N-gram raw speech recognition results + context
- recorded prompts or high definition TTS (16kHz)
- J2EE applications (JonAS application server)
- a runtime state engine
 - processing France Telecom metalanguage
- a semantic analyzer to process the speech recognition results

- and ... development TOOLS !



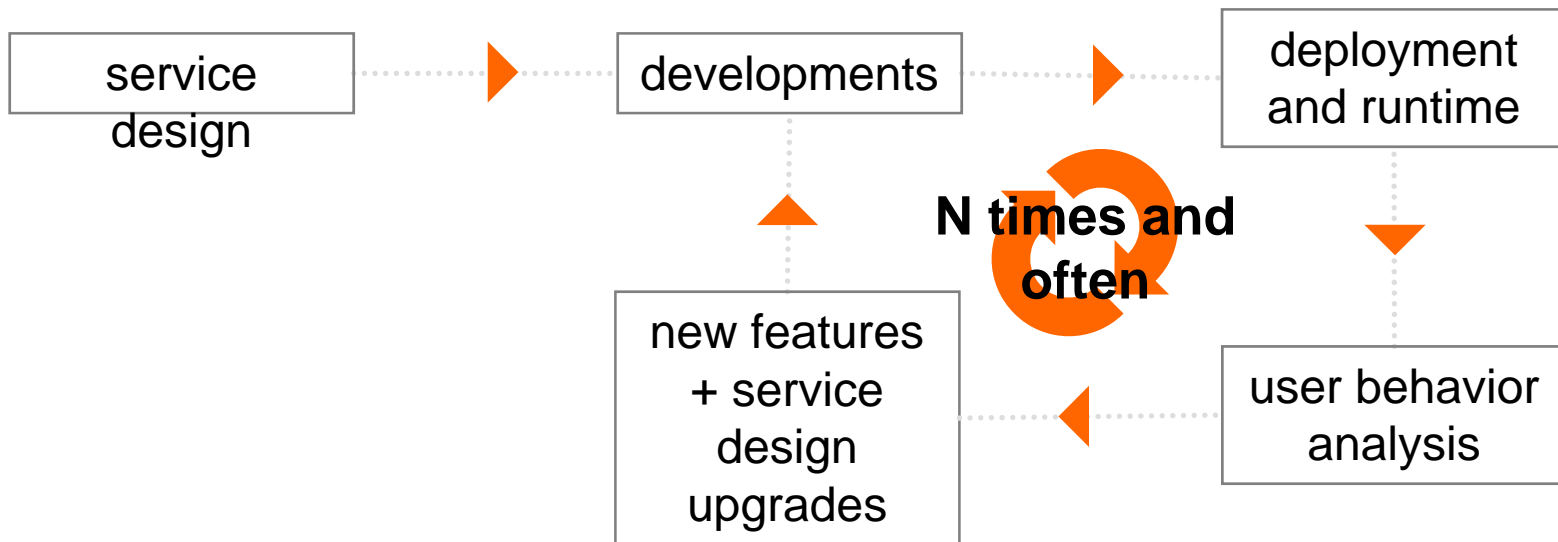
▪ **France Telecom Solution for advanced dialogs**

obvious benefits for deployment with the n-tiers approach

- share procedures with web deployments
 - leverage the Operational, Administration and Maintenance (OAM) teams
 - reduced OAM costs
- open source or France Telecom solutions available
 - reduce licensing costs
- easy replacement of any tier of the architecture
 - reduce customization costs for deployment in different countries
- share platform resources for several applications
- but increased integration complexity that requires more standards, interchangeable tools and a well defined methodology

3.tools and methodology for the NL life cycle based on standards

Methodology for NL life cycle used for the 800



tools and "standards" for service design



- Dialog Design Studio : a GUI for service design
 - Top/Down approach when defining the service
 - Describe the functional features
 - ➡ output in a proprietary xml format : functional view
 - Describe the voice dialog interactions thoroughly
 - ➡ output in a proprietary xml format : technical view
 - The GUI needs to generate a human readable exhaustive specification
 - ➡ output in Open Office format

tools and "standards" for developments



- Dialog Code Generator

- ➔ input : xml technical view + generic .jsp and servlets
 - automatic code generation
- ➔ output : France Telecom metalanguage xml format + runtime java code

- Dialog Analyzer Studio

- a GUI for semantic rules design
 - ➔ input : neurons and hard work 😊 + live traffic
 - ➔ analysis
 - output : semantic interpretation rules

tools and "standards" for deployment and runtime



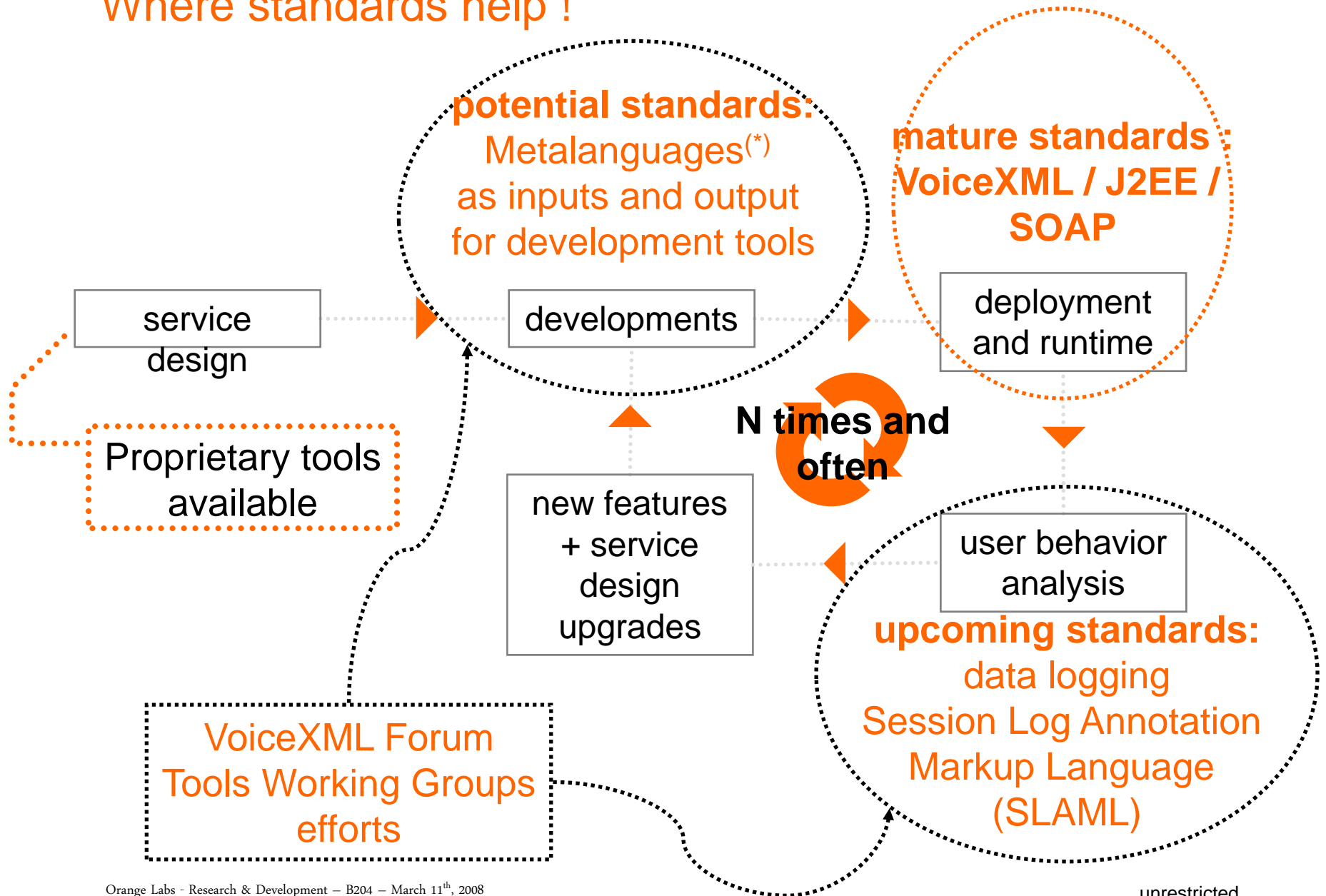
- VoiceXML gateway
- Dialog Engine on top of a J2EE application server
 - ➔ input : France Telecom metalanguage xml format + semantic interpretation rules
- Data logging
 - ➔ output : audio recordings and detailed path through the application

tools and "standards" for service improvements



- proprietary tools and database for call flows analysis
 - ➔ - input : audio recordings and detailed path through the application
 - ➔ transcriptions, usability analysis, search, statistics
 - output : recommendations + feedback for service design upgrades
 - ➔ - output : grammar tuning + semantic rules upgrades

Where standards help !



Messages to bring home:

Key elements for successful Voice Search applications

- Top/Down approach with iterative steps
- Use existing and upcoming standards
 - avoid proprietary extensions and challenge the "good" reasons you may have to use proprietary extensions
- Development tools to help service designers working on features and to help technical experts tuning the technologies
 - Tools needs to share standard inputs and outputs for voice search to be successful
- You need a voice search button and good microphones

thank you

Jean-François GYSS <jeanfrancois.gyss@orange-ftgroup.com>



Orange, the Orange mark and any other Orange product or service names referred to in this material are trade marks of Orange Personal Communications Services Limited.
© Orange Personal Communications Services Limited.

France Telecom Group restricted.

