




Developer Jam Session

VoiceObjects

May 27, 2009



Evaluating, testing, learning, presenting
VoiceObjects - the *Prime Telecom* demo
application for unified self-services

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Presales Manager EMEA



Product Demo

Prime Telecom

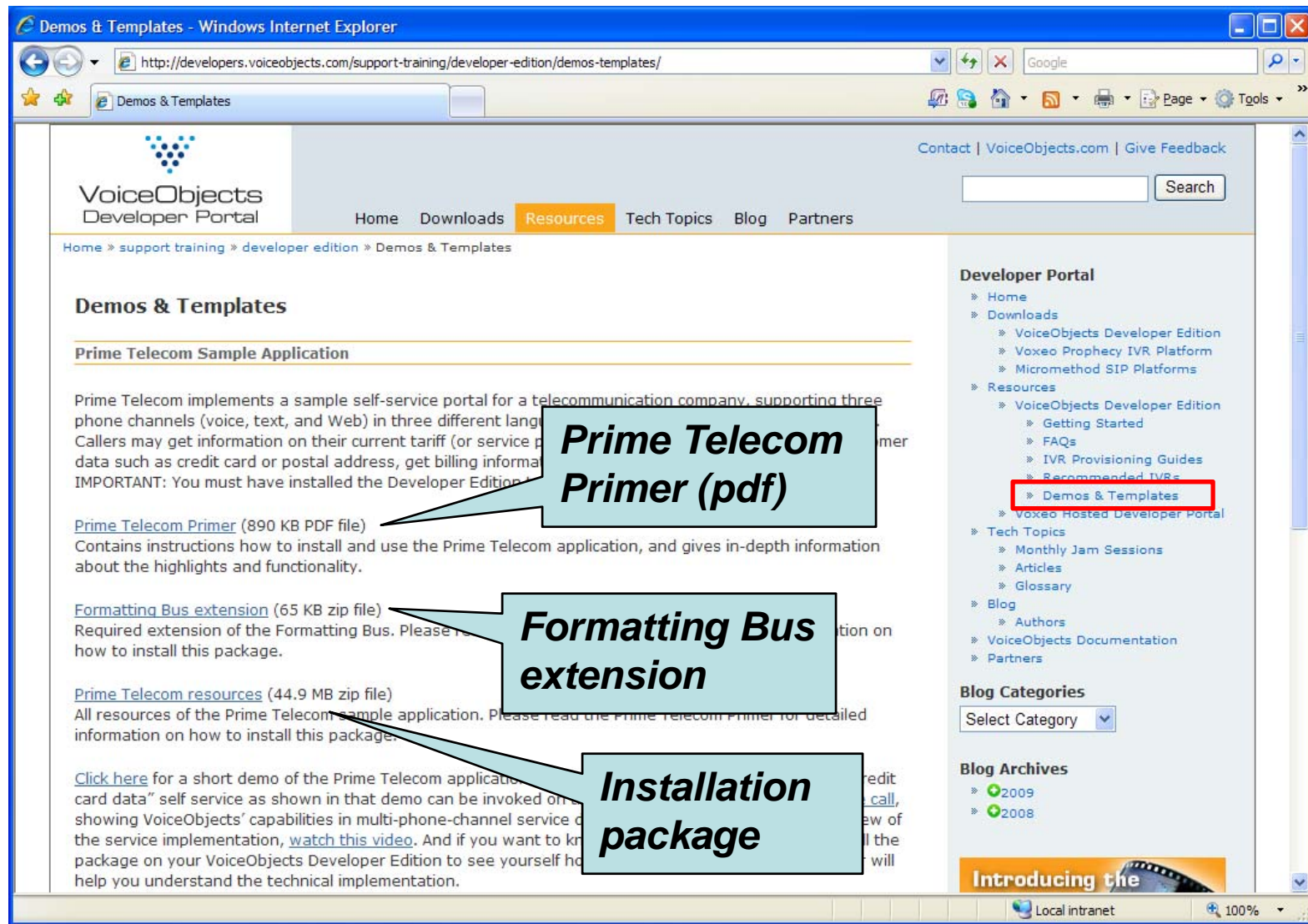
- Demo self-service portal of a mobile carrier
 - Multi-channel
 - Multi-language
 - Personalization
 - Best practices: VUI, GUI, reporting, VO implementation



*...and what is the new
Credit Card – Visa,
MasterCard, or American
Express?*



Prime Telecom Download & Installation



Prime Telecom Primer (pdf)

Formatting Bus extension

Installation package

Developer Portal

- » Home
- » Downloads
- » Resources
- » Tech Topics
- » Blog
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- » Home
- » Downloads
 - » VoiceObjects Developer Edition
 - » Voxeo Prophecy IVR Platform
 - » Micromethod SIP Platforms
- » Resources
 - » VoiceObjects Developer Edition
 - » Getting Started
 - » FAQs
 - » IVR Provisioning Guides
 - » Recommended IVRs
 - » **Demos & Templates**
 - » Voxeo Hosted Developer Portal
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Introducing the

Standalone product demo

Prerequisites



VoiceObjects

PrimeTelecom

- Prerequisites for standalone installation
 - Desktop for Eclipse
 - *In standalone mode*
 - *Prime Telecom application*
 - Voxeo Prophecy
 - X-Lite Softphone

- Optional
 - VoiceObjects Analyzer in local installation
 - *Cognos,*
 - *Microstrategy, or*
 - *Business Objects*



Prime Telecom

DEMO GUIDE

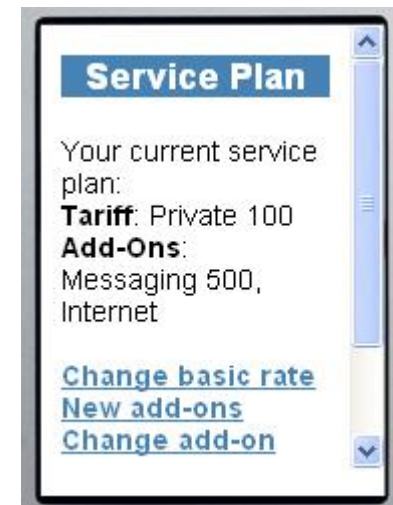


Demo Guide



Service Plan Manager

- Service Plan Manager Menu
 - “New add-ons” -> *come in!*
 - “Change add-on” -> *agent transfer*
 - “Change basic rate” -> *“under construction”*
- ID&V
 - *Identification by ANI*
 - *Verification by PIN (any 4 digit number)*
- Personalization
 - *Marketing promotion depending on customer segment (Silver/Platinum)*





Demo Guide



Customer Data Menu

- Payment Settings / Credit Card
 - *en-US/UK: Credit card data*
 - *de-DE: Bank account data*
- Postal and email address
 - *Only available in text/web*
 - *Verification of email address format*
 - *Integrated ZIP code database for postal address*





Demo Guide



Credit Card Number

Type	Starts with ...	#Digits
Visa	4	16
MasterCard	51, 52, ... 55	16
American Express	34, 37	15

■ Credit Card expiration date

- Text / Web
 - 0209, 02/09, 022009, 02/2009
- Voice
 - “oh two oh nine”; “oh two, two thousand nine”;
“February oh nine”; “February two thousand nine”
- DTMF
 - 0209





Prime Telecom

PERSONALIZATION

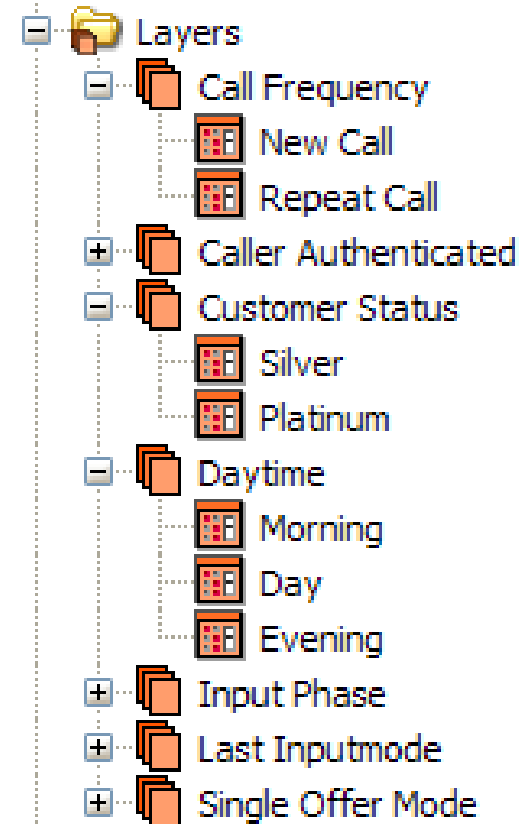
Prime Telecom Personalization



VoiceObjects

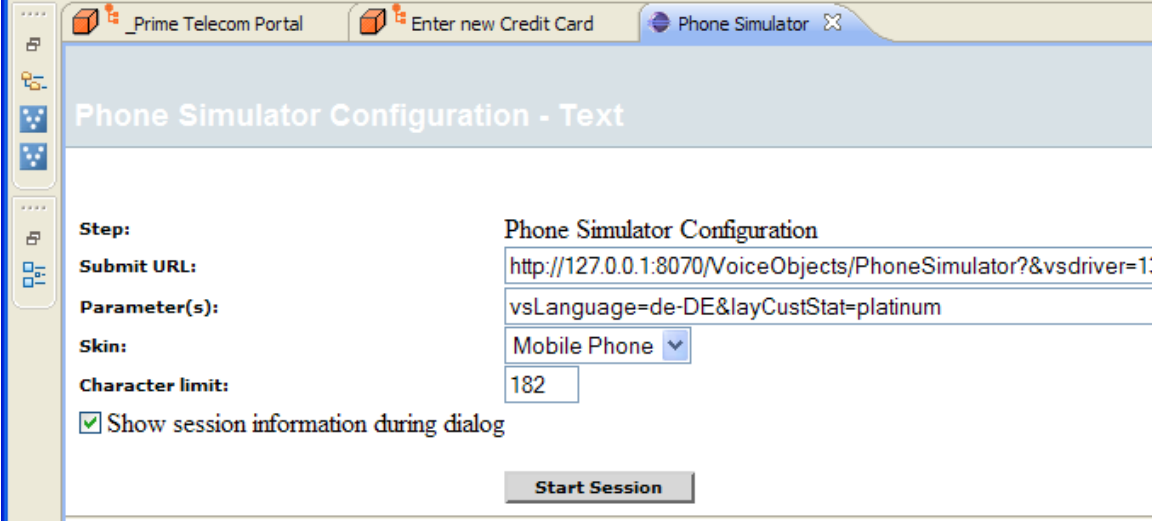
PrimeTelecom

- System Layers
 - Channel (*voice, text, web*)
 - Language (*en-US, en-UK, de-DE*)
- Custom Layers
 - Call Frequency
 - *No tedious repetition of information and promotions for repeat callers*
 - *e.g. Output „GEN Info prompt – back to main menu“*
 - Customer Status
 - *Platinum customers get easier access to live agents*
 - *e.g. Grammar „Talk to Agent“*



Prime Telecom Personalization

- When calling the Prime Telecom service, you can initialize the session with optional parameters:
- Setting the customer status:
 - Syntax: *layCustStat=platinum* (Default: *silver*)
- Setting the Language:
 - Syntax: *vsLanguage=de-DE*



The screenshot shows a web browser window with three tabs: "_Prime Telecom Portal", "Enter new Credit Card", and "Phone Simulator". The active page is titled "Phone Simulator Configuration - Text". The configuration form includes the following fields:

Step:	Phone Simulator Configuration
Submit URL:	<code>http://127.0.0.1:8070/VoiceObjects/PhoneSimulator?&vsdriver=1:</code>
Parameter(s):	<code>vsLanguage=de-DE&layCustStat=platinum</code>
Skin:	Mobile Phone <input type="button" value="v"/>
Character limit:	182
<input checked="" type="checkbox"/> Show session information during dialog	
<input type="button" value="Start Session"/>	



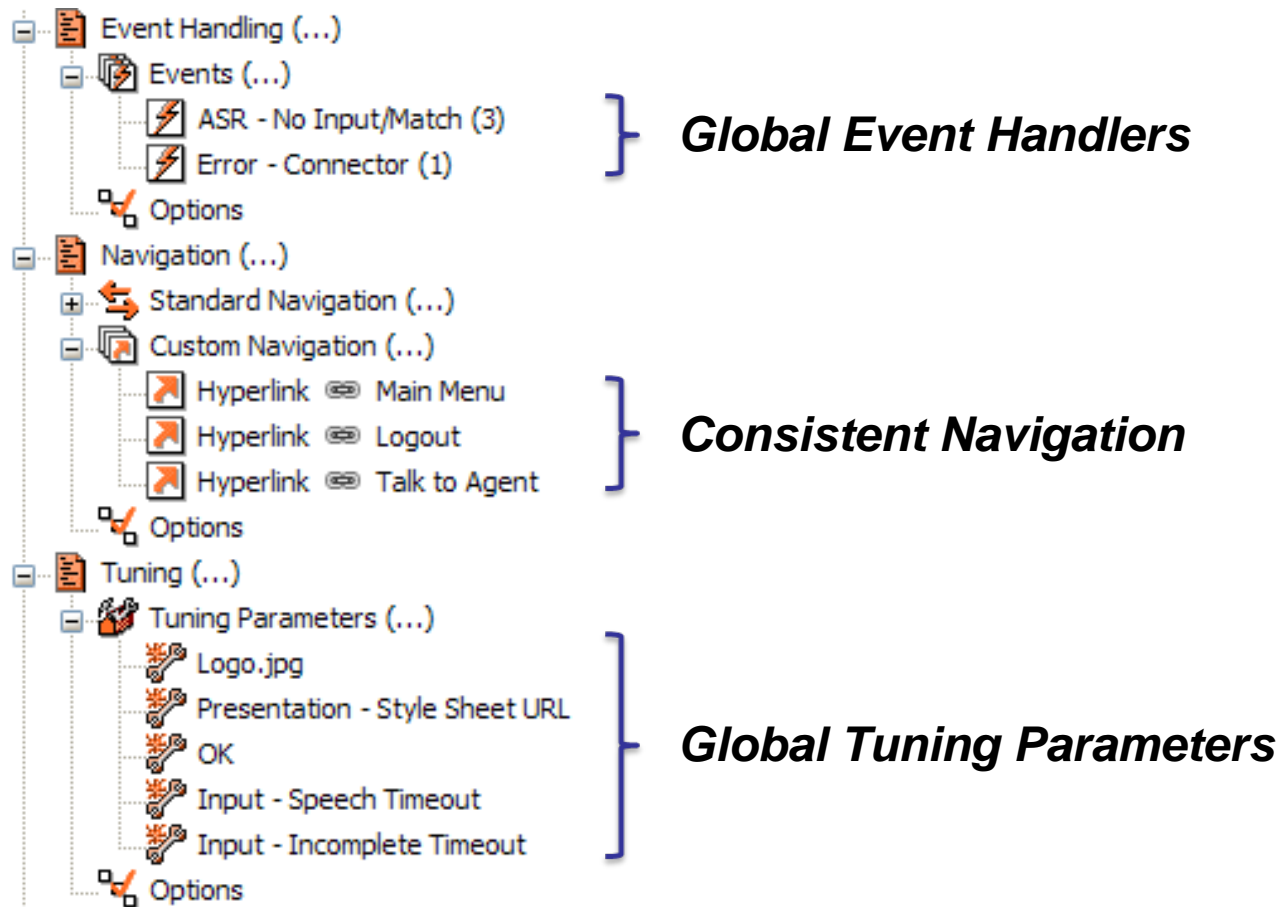
Prime Telecom

BEST PRACTICES

Prime Telecom

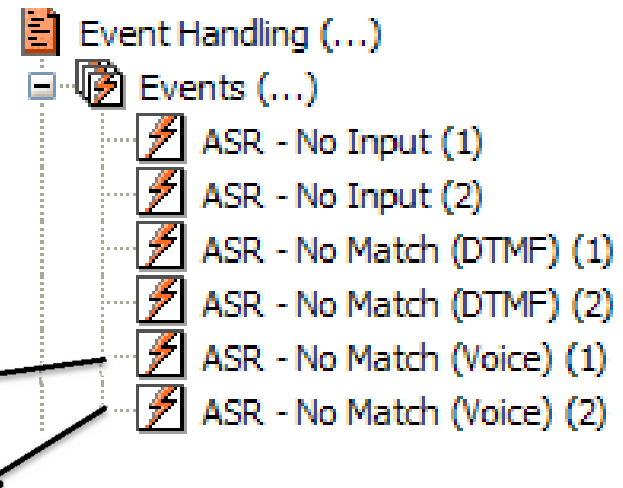
Consistent navigation, look&feel

- Definitions in Prime Telecom Portal (main Module)



Prime Telecom VUI Best practices – Event handling

- Prompt for DTMF input on 2nd NoMatch



NoMatch #1

“Visa, MasterCard, American Express?”



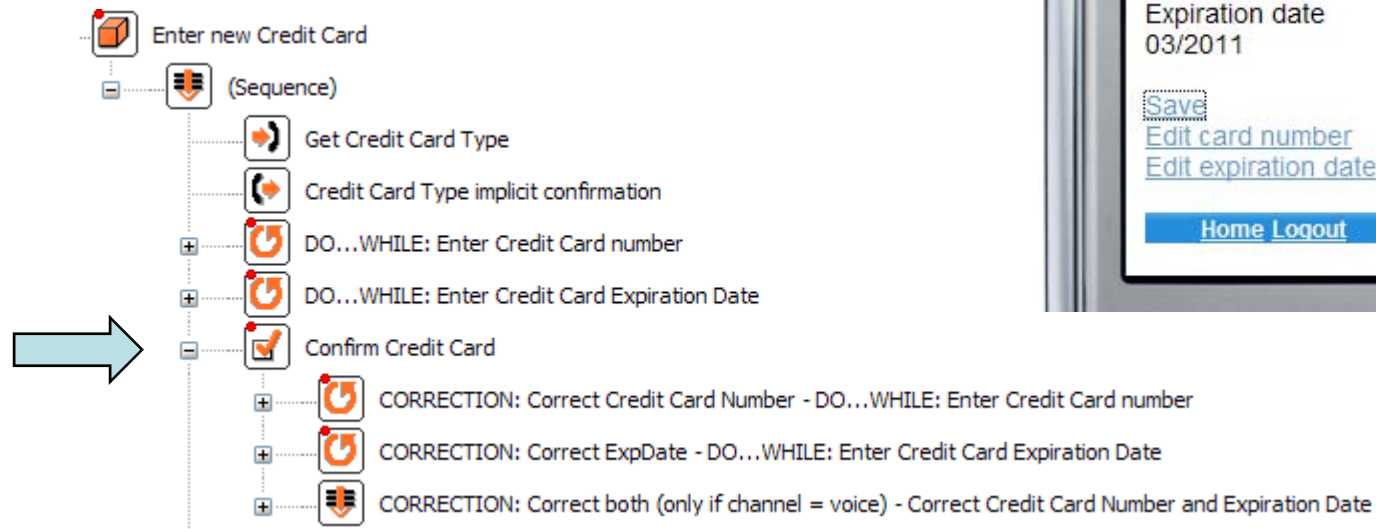
NoMatch #2

“Sorry, I missed that again.

Please tell me the brand of your credit card or press the corresponding key on your phone: Visa-1, MasterCard-2, or American Express-3.”

Prime Telecom VUI Best practices - Confirmation

■ Explicit confirmation



Prime Telecom VUI Best practices - Confirmation



- Implicit Confirmation
Allow the caller to correct the system immediately without explicit confirmation steps
- (Input object *Get Credit Card Number*)

“What’s your credit card?”

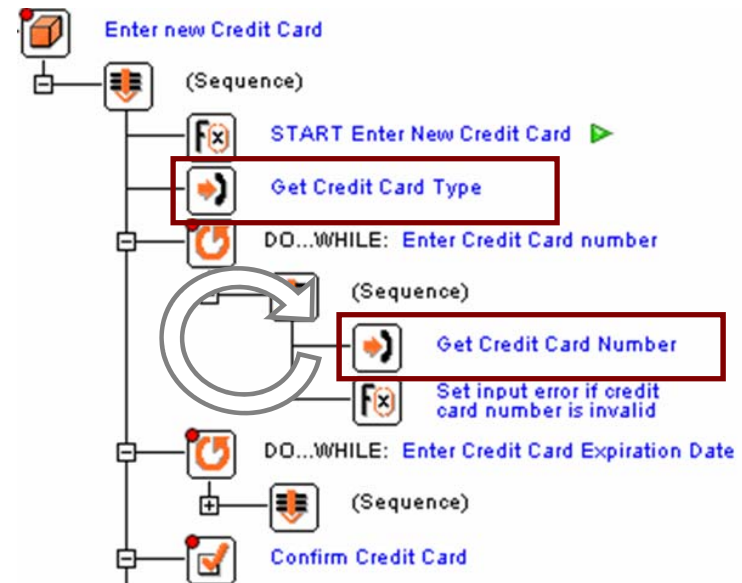
“It’s an *AmEx Card.*”

“And what’s the number of your *MasterCard?*”

“No, it’s *AmEx!*”

“Sorry, *AmEx.* And what’s the number?”

“3469 - ...”



Natural Dialog Management

Adapt-to-Caller

- Adapt to caller's speaking style: **Synonyms, Patterns**



"And the expiration date?"

"August two thousand eleven"

"August two thousand eleven. Is that right?"

"Yes."



"And the expiration date?"

"Oh eight, eleven."

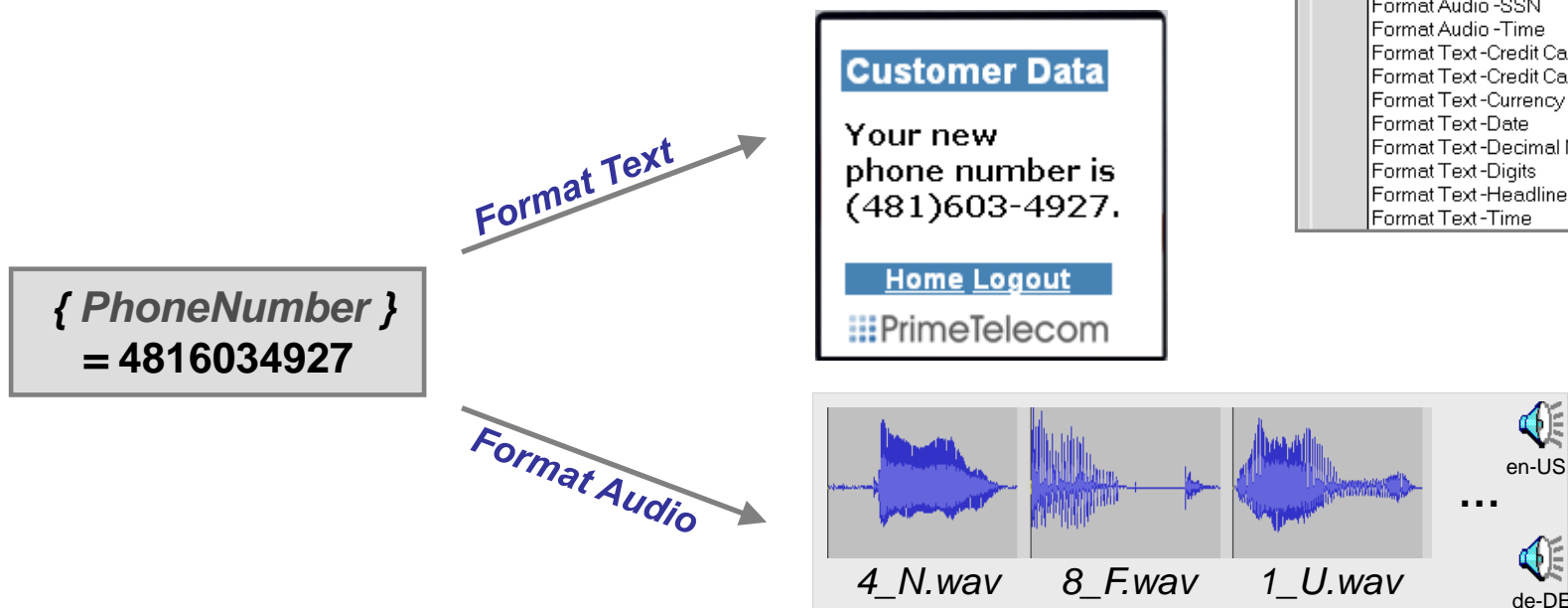
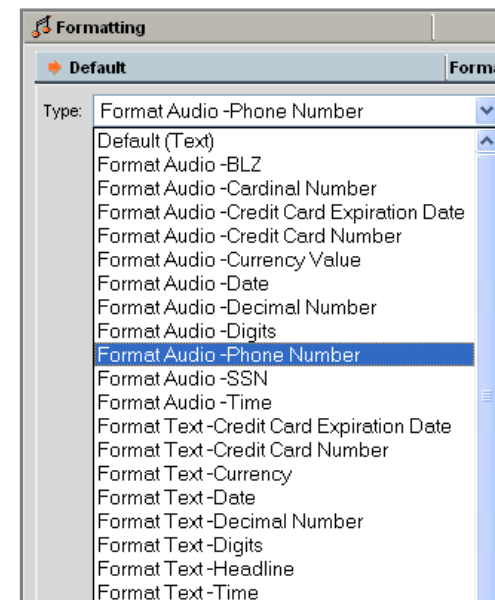
"Oh eight, eleven. Correct?"

"Yes."

Natural Dialog Management

Natural Pronunciation

- The VoiceObjects “Formatting Bus”
 - Natural pronunciation of dynamic content
 - Best-practice standard formats provided with Prime Telecom installation
 - *Date, Time, Digits, Number, Currency, Credit Card, ...*
 - Custom formatting can be added



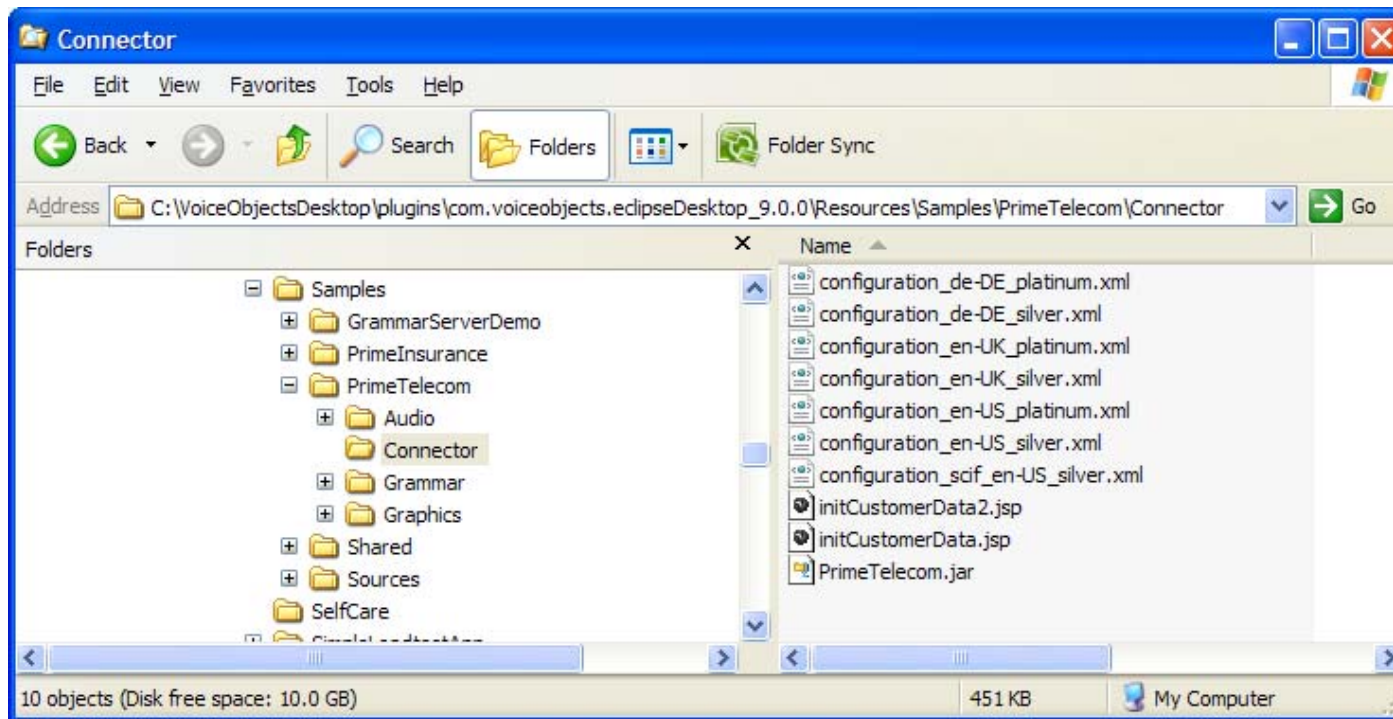
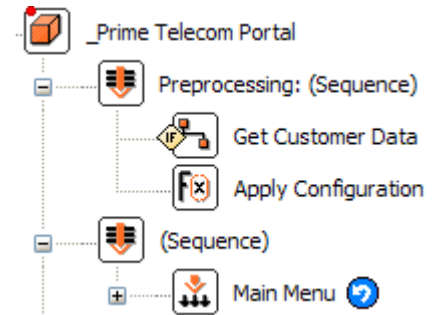
Prime Telecom Mobile Web GUI

- Using Cascading Style Sheets
- Using logos, bitmaps, icons
- Using specific input field types
 - Text fields
 - Password fields
 - Combo boxes
 - Radio buttons
- Multiple-field forms (= multi-slot input)



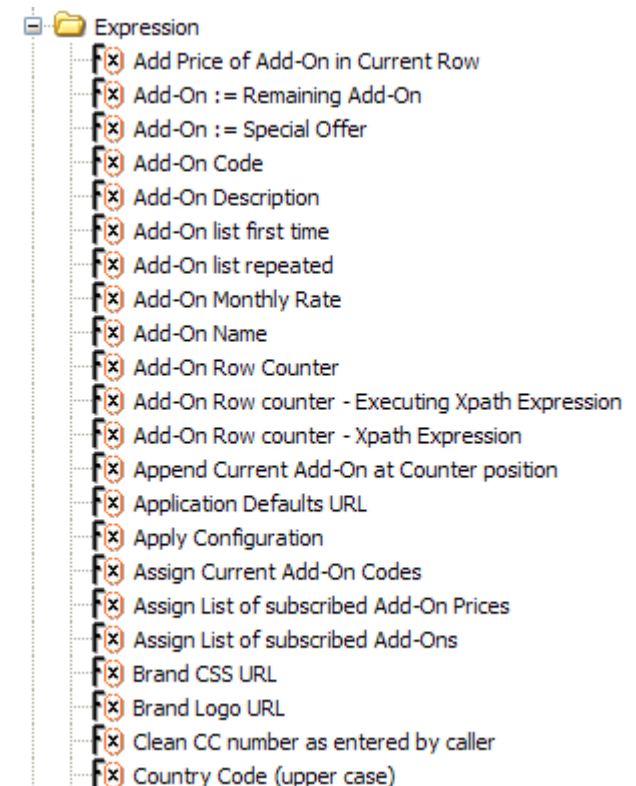
Prime Telecom Implementation Details

- Handling Test data
 - Different sets of data for silver / platinum callers indifferent languages



Prime Telecom Implementation Details

- Cool Expressions
 - Sum up Prices of all Active Add-Ons
 - *ITERATE*
 - Last Day In Current Month
 - *LASTDAYINMONTH*
 - Apply Configuration
 - *APPLYCONFIGURATION)*
 - Is Email Address Valid
 - *MATCHESREGEXP*
- Try to use Expressions instead of Script objects!



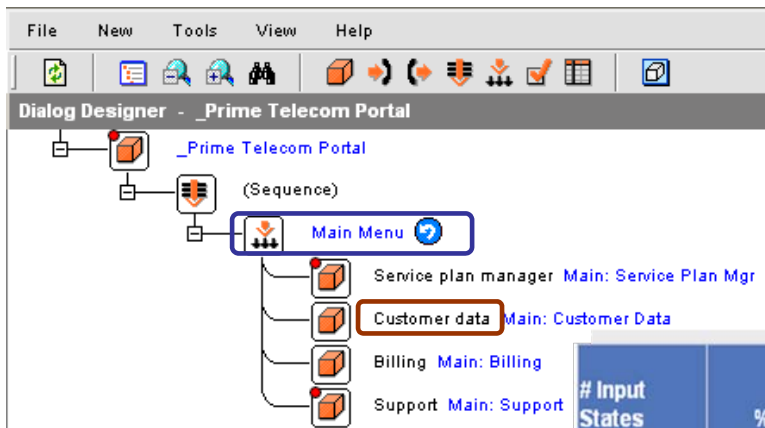


Prime Telecom

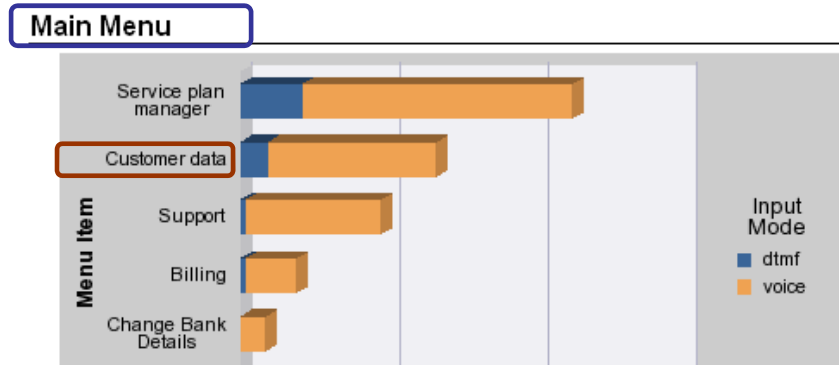
SERVICE ANALYSIS

Service Analysis Menu Navigation Report

Service Definition



Reporting on Service Usage



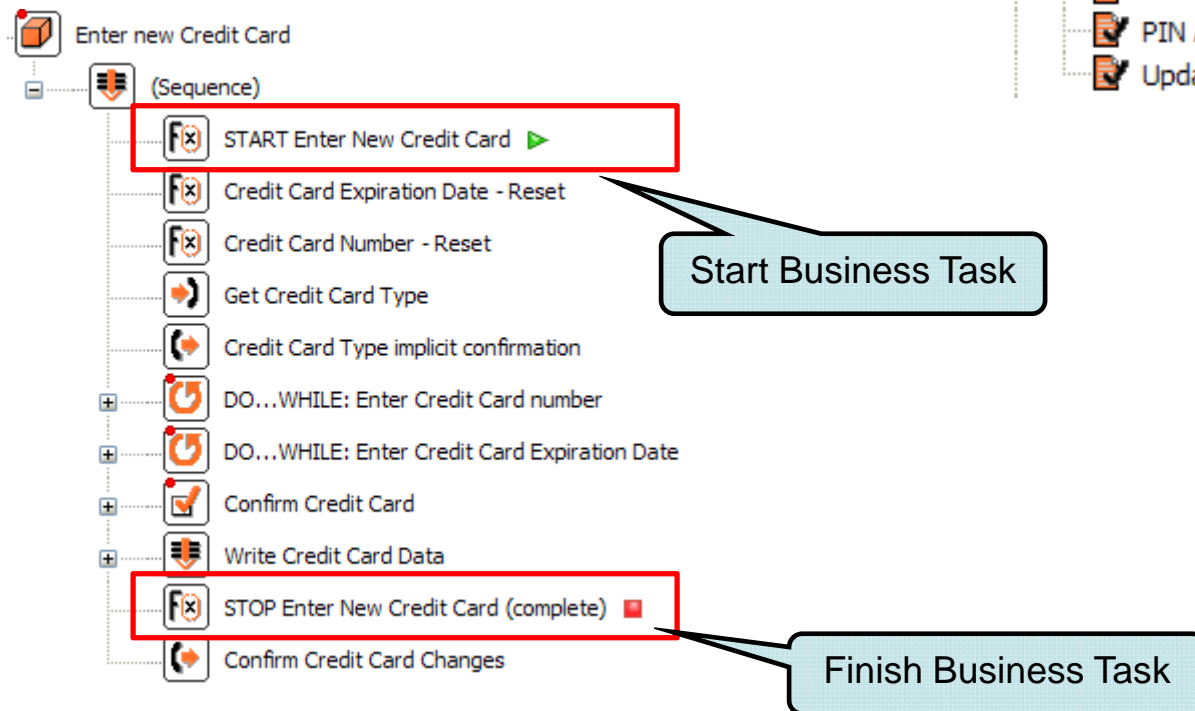
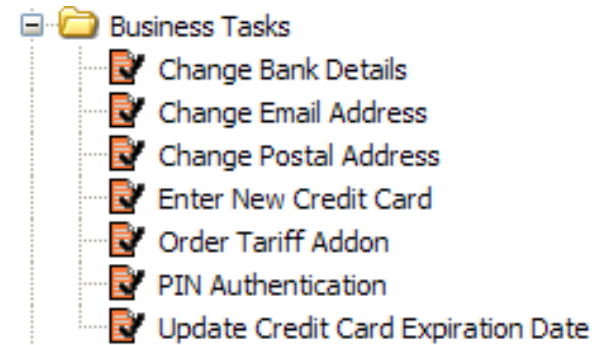
# Input States	%	Slots	Transition Type	Input Mode	Avg Confidence	Avg Duration (sec)	Avg #NoMatch
3,639	35.71%	Service plan manager	Recognition	voice	0.77	8.67	0.12
2,259	22.17%	Customer data	Recognition	voice	0.77	8.61	0.13
1,800	17.66%	Support	Recognition	voice	0.77	9.30	0.15
829	8.14%	Service plan manager	Recognition	dtmf		8.50	0.14
665	6.53%	Billing	Recognition	voice	0.78	8.92	0.15
376	3.69%	Customer data	Recognition	dtmf		9.12	0.09
325	3.19%	Change Bank Details	Hyperlink	voice	0.79	9.82	0.22
156	1.53%	Main Menu	Hyperlink	voice	0.78	9.02	0.24
71	0.70%	Billing	Recognition	dtmf		9.13	0.01
70	0.69%	Support	Recognition	dtmf		10.81	0.00
10,190	100.00%						



Business Tasks

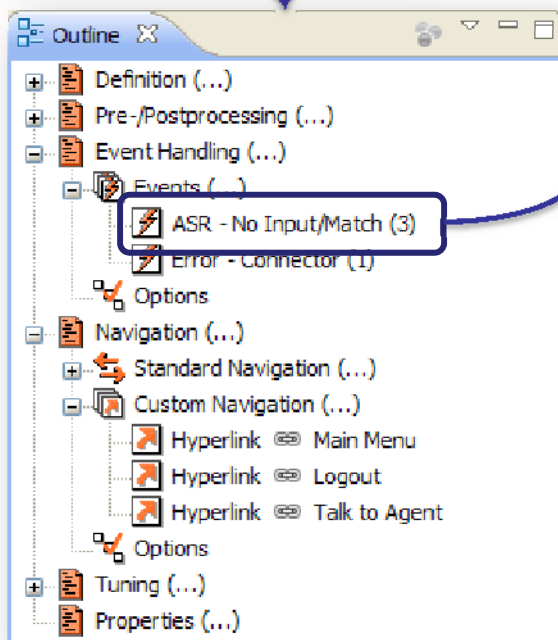
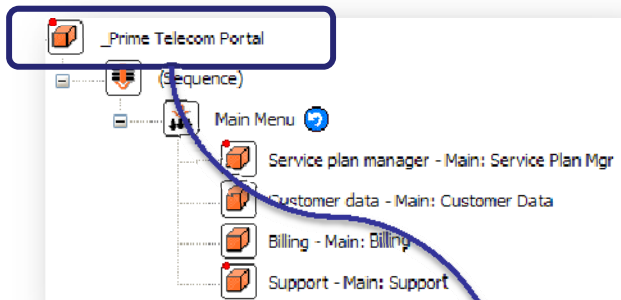
Business Task Reporting

- Reporting on task completion
- Analysis for task related application tuning



Business Tasks

Finishing Tasks Automatically

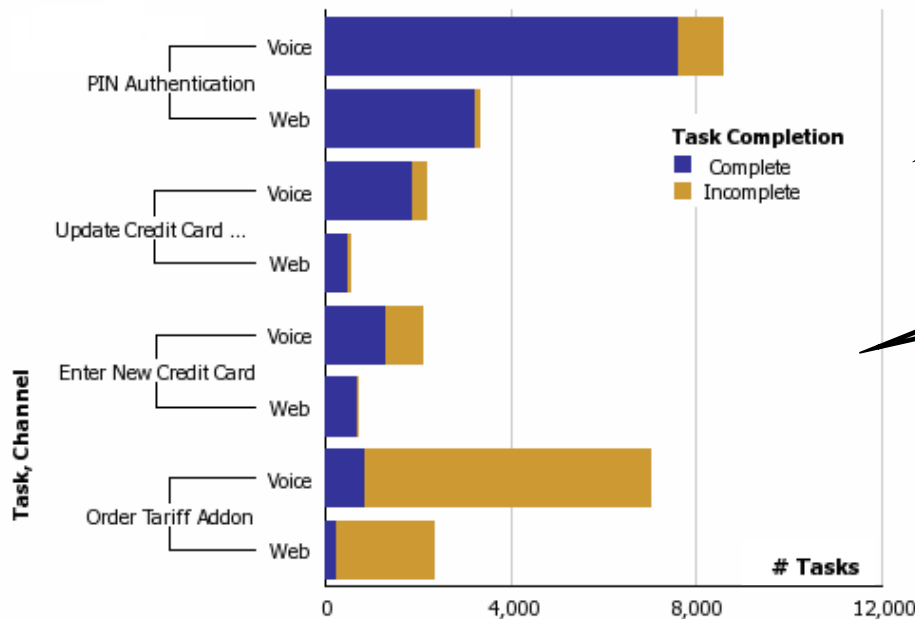


Event	
ASR - No Input/Match (3)	
Label:	
Layer:	
Channel:	Default
Occurrence:	If >= 3
Event type:	ASR - No Input/Match
Object:	Third NiNm
Continuation:	Proceed
Finish Tasks:	All
Filtering:	None
Values:	
<input type="checkbox"/> Send Notification on event types "Error - Connector", "Error - Script", or "Error - Internal"	

Finish *all* tasks that have been started but not yet terminated

Service Analysis

Business Tasks: Completion Rates



Cross-channel Reporting

Business-level statistics on Task completion rates

... but 82% actively aborted the "Order" transaction ...

Voice		Complete		Incomplete				# Tasks		
		# Tasks	%	# Tasks	%	Recognition failure	Session termination			
		# Tasks	%	# Tasks	%	# Tasks	%	# Tasks	%	
Authentication	PIN Authentication	7,640	89%	119	1%	200	3%	552	6%	8,591
Transaction	Enter New Credit Card	1,300	62%	131	6%	327	16%	343	16%	2,101
	Order Tariff Addon	883	13%	5,751	82%	245	4%	111	2%	6,994
	Update Credit Card Expiration Date	1,900	87%	37	2%	96	4%	147	7%	2,180
		11,723		6,038		948		1,157		19,866

"Update Expiration Date" was very successful ...

... and there were recognition problems and hangups while entering new credit card data

Application Tuning – Sample Analysis

Individual Call Analysis

VoiceObjects Analyzer Search Sessions

Service
* Prime Telecom

Channel
Voice

Layers
Layer

Layer States
Layer State

Last Module
Last Module

Last Input State
Last Input State

Business Tasks
Enter New Credit Card

Business Task Completion
Incomplete

Business Task Status
Recognition failure

Show only Calls where the task “Enter New Credit Card” failed because of a recognition failure

... only Calls with certain customer segments

... only Calls that terminated in a given Input State or Module

**Step 1:
Define Filter Criteria**

Type one or more keywords separated by spaces.
 Search

Options
Choice:

Application Tuning – Sample Analysis

Individual Call Analysis



VoiceObjects Analyzer
Search Sessions

# Sessions	# Known Caller	Duration (min.)	Avg Duration (sec.)	Min Duration (sec.)	Max Duration (sec.)
798	438	2,059	155	20	520

Drill Through Session...	Day	Minute	ANI	Duration (sec.)	Avg Confidence (Voice)	# Input States	% Voice	% DTMF	% Successful	% Immediate Rec.	# No Input	# No Match	# Help Events	# Repeat Events	# Errors	# Errors - Media Platform	# Errors - Internal	# Errors - Script	# Errors - Connector
Details	11/21/07	00:11PM-00:12PM	49221021196	76	0.710	10	50.0%	30.0%	80.0%	80.0%	0	3	0	0	0	0	0	0	0
Details	11/21/07	00:13PM-00:14PM	491705663338	161	0.720	22	59.1%	9.1%	68.2%	50.0%	9	9	0	0	0	0	0	0	0
Details	11/21/07	00:14PM-00:15PM	49221713051	104	0.750	8	25.0%	37.5%	62.5%	62.5%	4	3	0	0	0	0	0	0	0
Details	11/21/07	00:14PM-00:15PM	49221743338	146	0.740	16	62.5%	18.8%	81.2%	31.2%	8	9	0	0	0	0	0	0	0
Details	11/21/07	00:14PM-00:15PM	49221994941	212	0.790	11	63.6%	18.2%	81.8%	63.6%	3	3	0	0	0	0	0	0	0
Details	11/21/07	00:15PM-00:16PM	491703797059	116	0.700	9	66.7%	22.2%	88.9%	66.7%	1	2	0	0	0	0	0	0	0
Details	11/21/07	00:15PM-00:16PM	491703797059	123	0.700	9	66.7%	22.2%	88.9%	66.7%	1	2	0	0	0	0	0	0	0
Details	11/21/07	00:16PM-00:17PM	492210249904	125	0.790	14	71.4%	7.1%	78.6%	50.0%	4	4	0	0	0	0	0	0	0
Details	11/21/07	00:16PM-00:17PM	49221354688	159	0.740	17	76.5%	5.9%	82.4%	58.8%	10	8	0	0	0	0	0	0	0

Step 2:
Select Sessions from List

Application Tuning – Sample Analysis

Individual Call Analysis

VoiceObjects Analyzer

Session Analysis - Details

Call on 11/21/07, 00:14PM-00:15PM - ANI: 49221743338

Input State Step	Task	Module	Input State	Input Type	Utterance	Transition Type	Input Mode	Confidence	# No Input	# No Match	Duration (sec)	Rec. No Match 1	Rec. No Match 2	Rec. Recognition
0		Prime Telecom Portal	Main Menu	Menu	my service plan	Recognition	Voice	0.610	0	1	4.8	listen		listen
1		Service Plan Mgr	Present Current Products (Voice/Video)	Input	0	Auto Advance	No		1	0	0.1			
...								
7	PIN Authentication	PIN Authentication (if necessary)	Get PIN	Input	bfba0710b99e340f5a6dd83c815e	Recognition								
8		Service Plan Mgr	Service Plan Manager	Menu	back to main menu	Hyperlink	Voice	0.730	0	2	3.5	listen	listen	listen
9					mer data									listen
10		Customer Data												listen
11		Check Settings												
12	Enter New Credit Card	Enter new Credit Card	Get Credit Card Type	Input	3									
13			Get Credit Card Number	Input	782fe995eed4aa7bab1bf82c8ae0		MF	1.000	0	2	6.9	listen		
14			Get Credit Card Expiration date	Input	july oh nine	Recognition	Voice	0.850	0	0	2.5			listen
15			Confirm Credit Card	Confirmation	0	Hangup	No Recognition		0	2	4.1	listen	listen	

Step 3:
Analyze Session

Inspect dialog steps associated with the task

Caller hung up after 2 failed speech recognitions

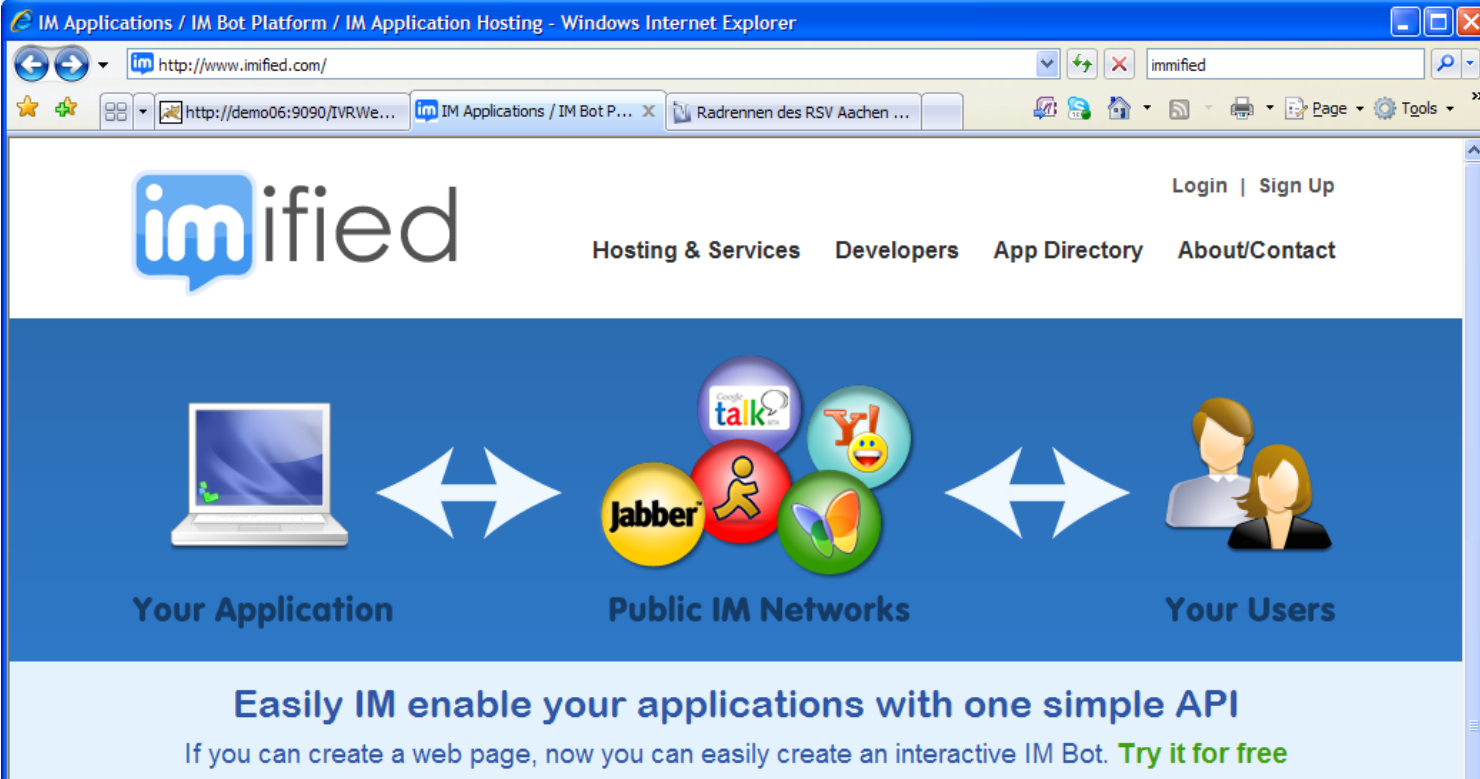
Listen to utterance recordings



Prime Telecom

NEXT STEPS

Outlook – Prime Telecom goes IM



The screenshot shows a web browser window displaying the IMified website. The browser's address bar shows the URL <http://www.imified.com/>. The website header includes the "imified" logo, a "Login | Sign Up" link, and navigation links for "Hosting & Services", "Developers", "App Directory", and "About/Contact".

The main content area features a diagram illustrating the integration process. On the left, a laptop icon is labeled "Your Application". A double-headed arrow connects it to a central cluster of IM network logos, including "Jabber", "Google Talk", "Y!", and "iChat", labeled "Public IM Networks". Another double-headed arrow connects this cluster to an icon of two people, labeled "Your Users".

Below the diagram, the text reads: "Easily IM enable your applications with one simple API". A sub-headline states: "If you can create a web page, now you can easily create an interactive IM Bot. [Try it for free](#)".

[Voxeo Acquires IMified](#)

Thank You!



VoiceObjects

PrimeTelecom

Questions





Next Jam Session

- Tobias Göbel presents:

Integrating advanced call control in VoiceObjects applications using CCXML



How **CCXML** can **interact with VoiceObjects** applications

- Outbound dialing
- Two-party bridging
- Call whisper
- Multi-party conferences

Demo code will be provided so that participants can test the applications with the free downloads of Voxeo's Prophecy platform and VoiceObjects Phone Application Server.

Wednesday, June 24

5 pm CEST - 11 am EDT - 8 am PDT