



voxeo

VoiceObjects Developer Jam Session Reporting and Analytics Best Practices

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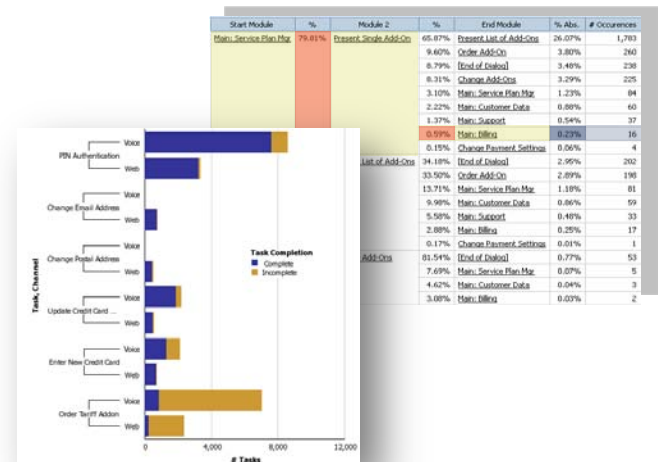
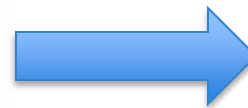
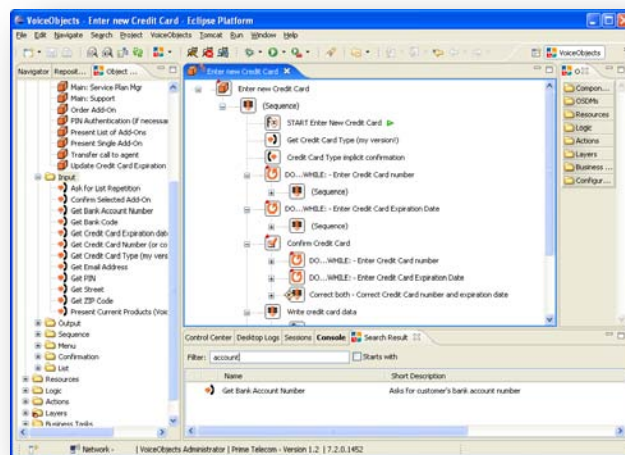


Andreas Volmer
Presales Manager EMEA
avolmer@voxeo.com



Agenda

- ▶ We will create a simple IVR service in VoiceObjects and demo how the developer can control and use reporting
- ▶ Discuss Best Practices

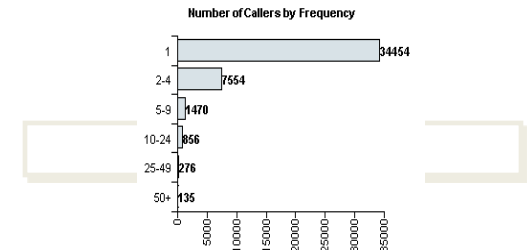
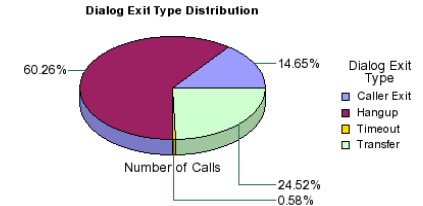
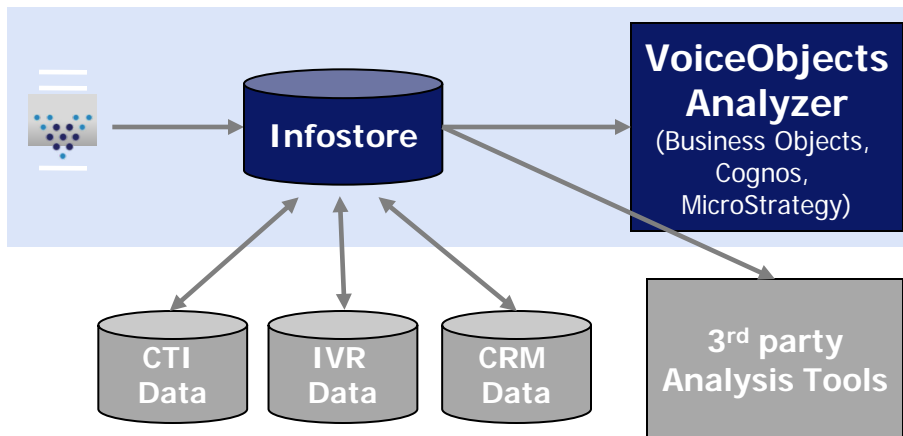


▶ VoiceObjects

Infostore and Analyzer

VoiceObjects Infostore and Analyzer

- Out-of-the-box Data Capture by VoiceObjects Server
 - Dimensional Data model optimized for BI analysis
 - Integrates with data from ASR, CTI, and CRM
- Analysis and Reporting
 - Based on standard business intelligence tools
 - 60+ predefined Reports, based on real-time data
 - Extends existing Data Warehouse
 - Includes Customer behavior and business analysis
- Highest Rated Analytics Package in the Market



Number of DTMF Fallbacks	42,532
Avg Number of DTMF Fallbacks per Input State	1.96%
Avg Number of NoMatch events before DTMF Fallback	1.53
Avg Number of DTMF Fallbacks per Call	0.13

Module	Number of Calls	Number of DTMF Fallbacks	Avg DTMF Fallbacks per Call	DTMF Fallbacks per Input State
Life insurance	37,924	12,487	0.33	7.68%
File new claim	45,789	22,410	0.49	5.46%
Check existing claim	55,392	7,635	0.14	2.38%
Car Insurance	64,715	0	0.00	0.00%
Health Insurance	29,011	0	0.00	0.00%
Prime Insurance Portal	96,298	0	0.00	0.00%

VoiceObjects Server data capture



Customer
Behavior
Intelligence

Dominant Path Analysis

*Interactive caller
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Personalization Statistics

*Service performance
by customer segment*

Business Tasks

*Transaction completion
rates with detailed
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Application
& Grammar
Tuning

ASR Performance

*Speech recognition
performance analysis
Event counters
Barge-in detection*

Utterance Statistics

*Grammar coverage,
Word count stats,
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Utterance Recordings

*Access to utterance
recordings in
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Statistical data
sampling 

System
Usage &
Performance

Server Statistics

- Call concurrency, call duration
- Technical metrics
- Session partitioning analysis

Session Details

- Individual call time & duration
- Aggregated ASR Statistics
- Reason for call termination

Analyzer Usage Scenarios



Analytics

Interactive Web frontend
Slice & dice, Drill-down
Application Tuning

Report Generation

Automatic report creation
(scheduled daily / weekly)
Send as PDF or HTML

Dashboards

Performance Overview
Service Usage Monitoring

VoiceObjects Analyzer

Data Warehouse

Service usage and
success analysis by
customer segments

Alerts / Notifications

Metrics definition
Alerts via SNMP, email, ...

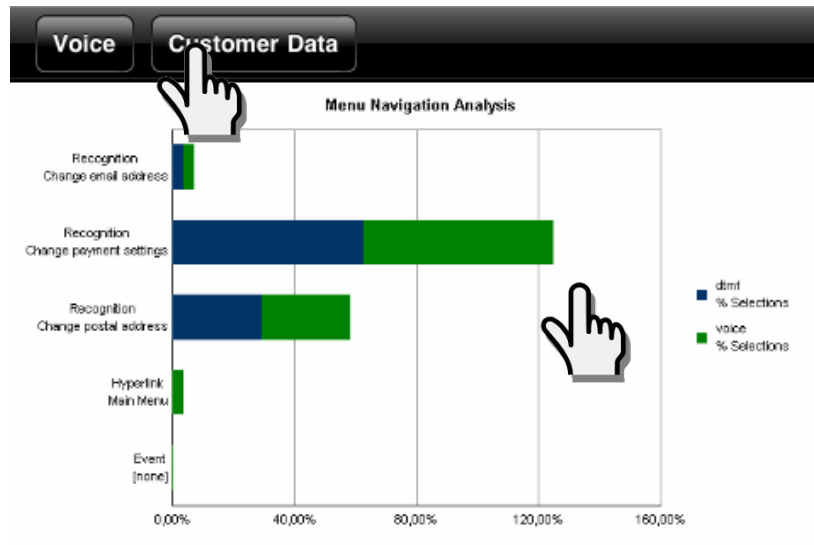
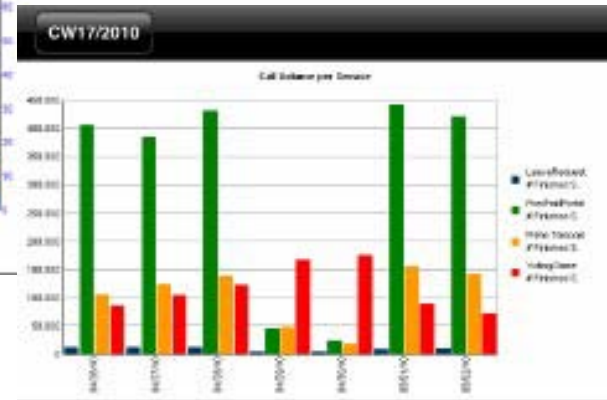
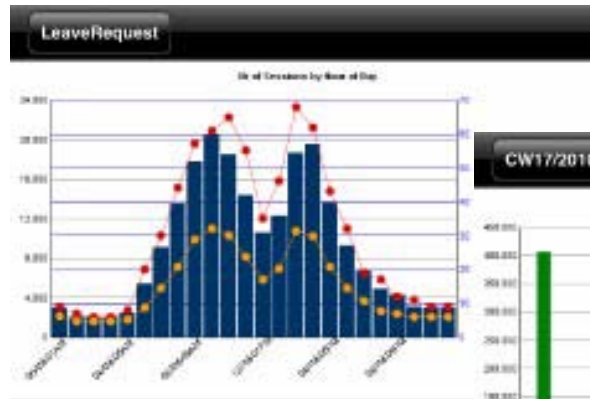
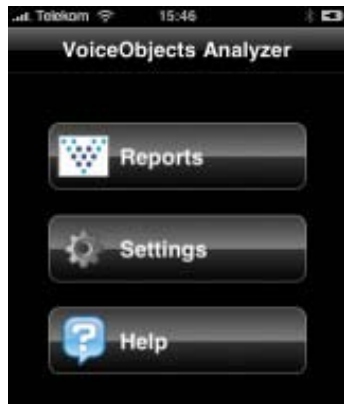
Mobile Access

Management-level KPI
and trend analysis reports

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Management-level KPI
and trend analysis reports

VO Analyzer mobile (iPhone)

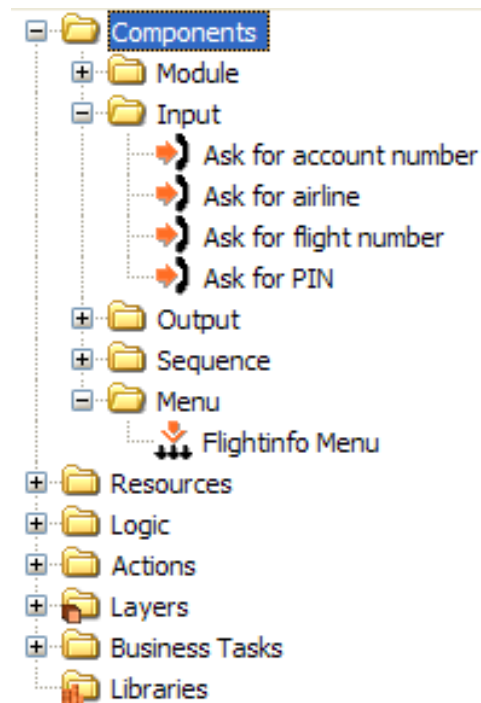


Mobile Access
Management-level KPI
and trend analysis reports

Using MicroStrategy 9 Mobile
(iPhone, iPad, BlackBerry)

- ▶ Reporting & Analytics from the developer's perspective
 - How to get it right for Business?
 - How to use it for application tuning?

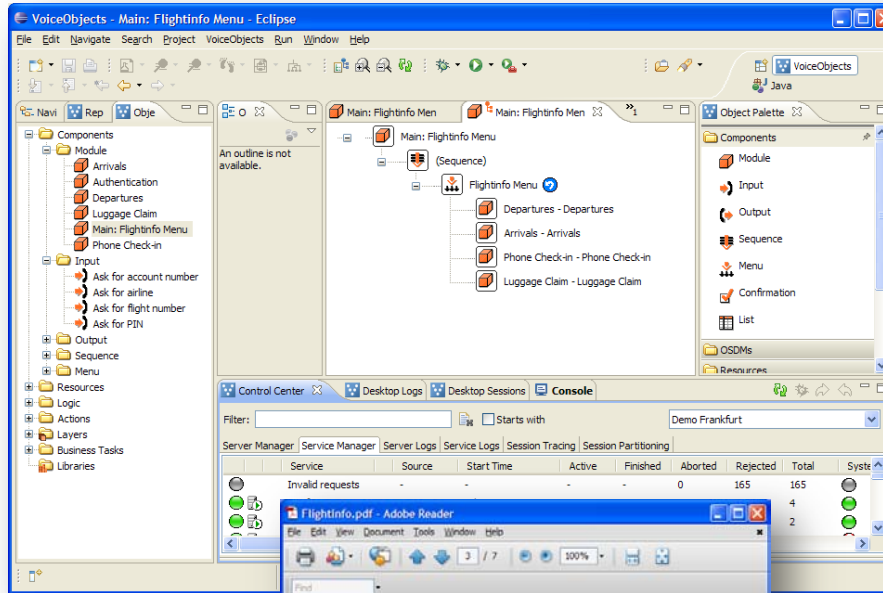
▶ Input States



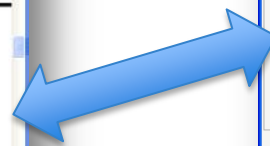
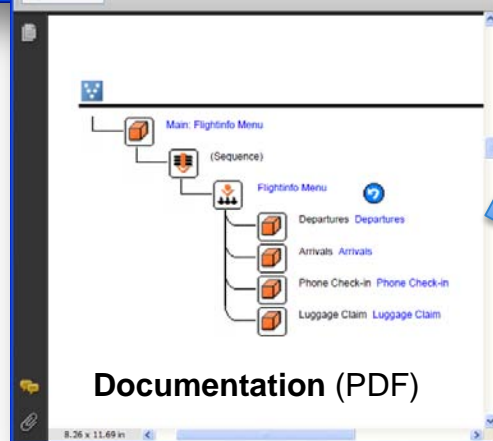
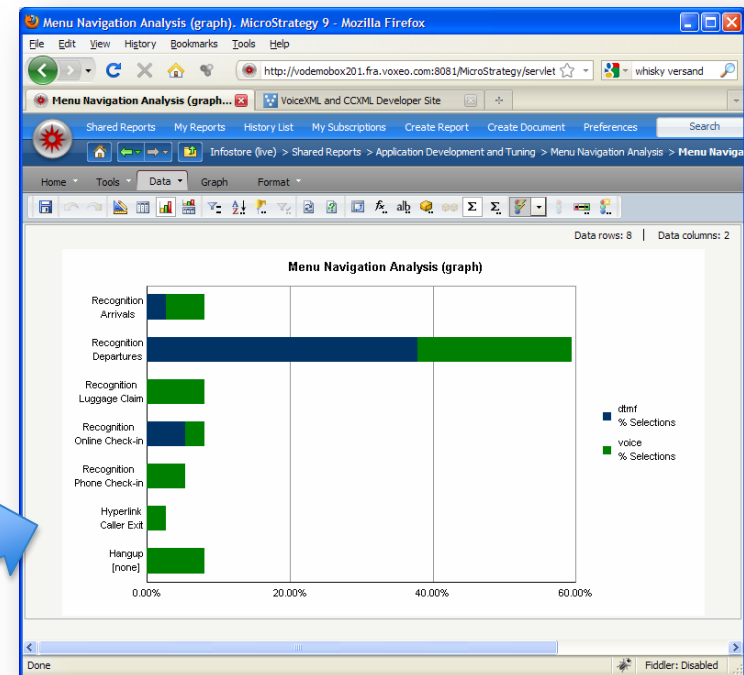
Design, Documentation, Reporting



Call Flow Implementation (Desktop for Eclipse)

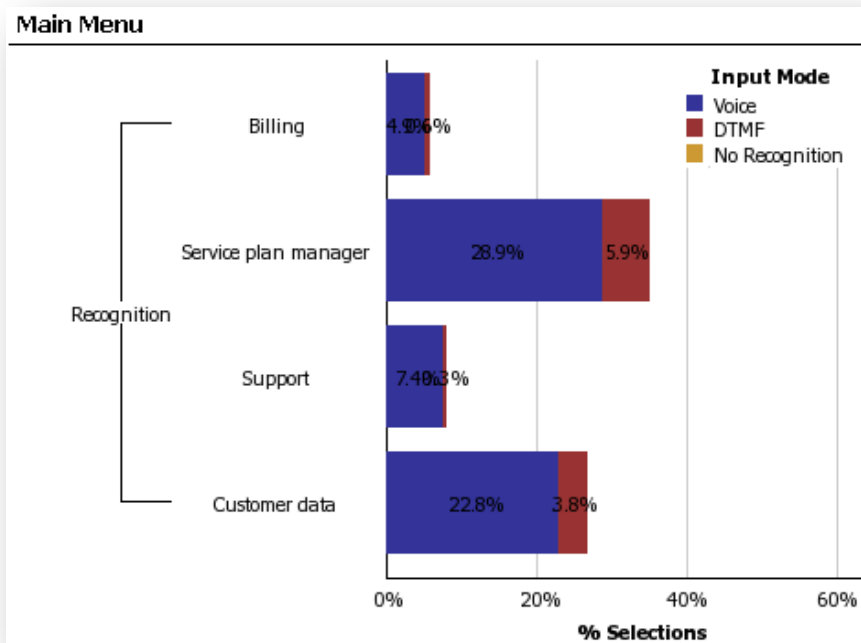
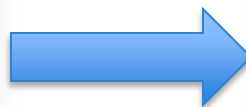
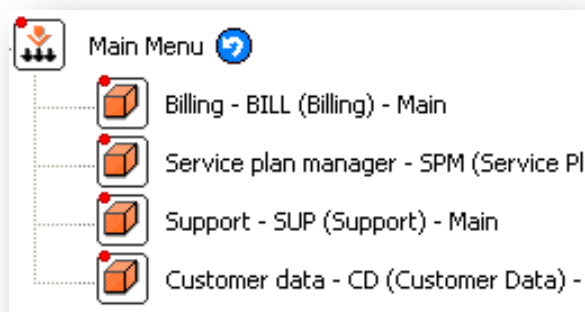


Reporting and Analytics (VO Analyzer)



▶ Object Names and Labels

- Will pop up in project documentation and reporting
- Should be short, readable & meaningful (also to business users)
- Should not be changed once defined



Application Tuning



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Server Statistics

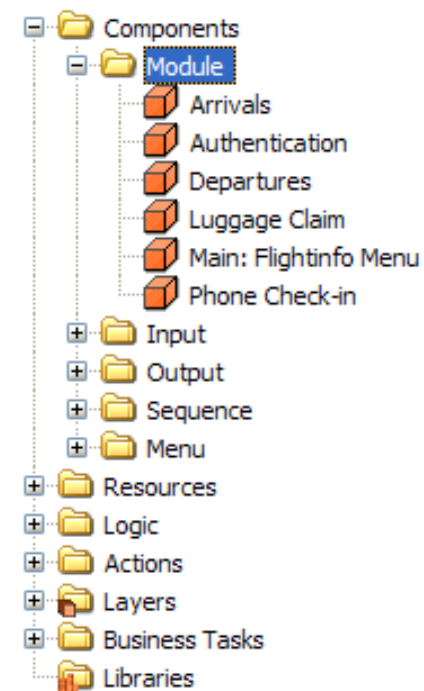
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- Session partitioning analysis

Session Details

- Individual call time & duration
- Aggregated ASR Statistics
- Reason for call termination

- ▶ Input State Statistics
 - Drilling: Module → Input State → Slot → Utterances
- ▶ Caller Exists by Input States
- ▶ Menu Navigation Analysis
 - Understand caller navigation on menu level
- ▶ Recordings by Input State
 - Analyzer Utterance Recordings and compare with ASR result

▶ Modules



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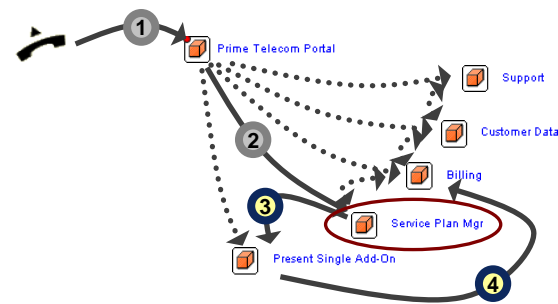
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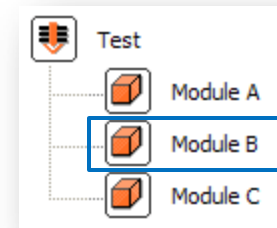
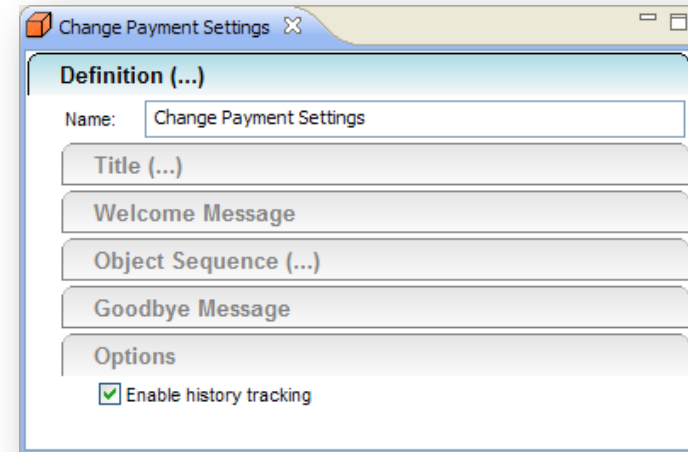
- ▶ Dominant Path Analysis
 - Frequency of Module Subsequences



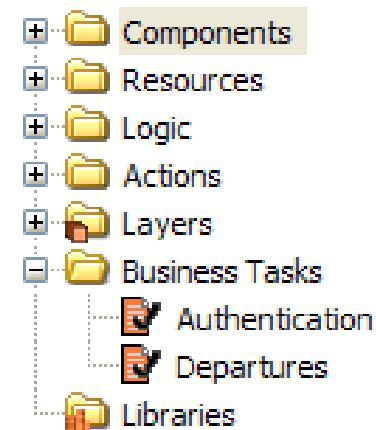
- ▶ Naming
 - Contents of a Module should be obvious by its name
 - Prefer short names – makes path analysis easier to read
- ▶ Granularity
 - If call flow contained in Modules is too simple, Module path analysis becomes very complex
 - If call flow contained in Modules is too complex, Module path sequences become meaningless

Module History Tracking

- ▶ Control which Modules will be logged in Module Sequence logging
- ▶ History tracking should be **enabled** if the Module ...
 - has a meaningful name and content
 - will help to understand caller navigation in Dominant Path Analysis
- ▶ History tracking should be **disabled** if the Module ...
 - is only used in a static sequence
 - doesn't contain any call flow components



▶ Business Tasks



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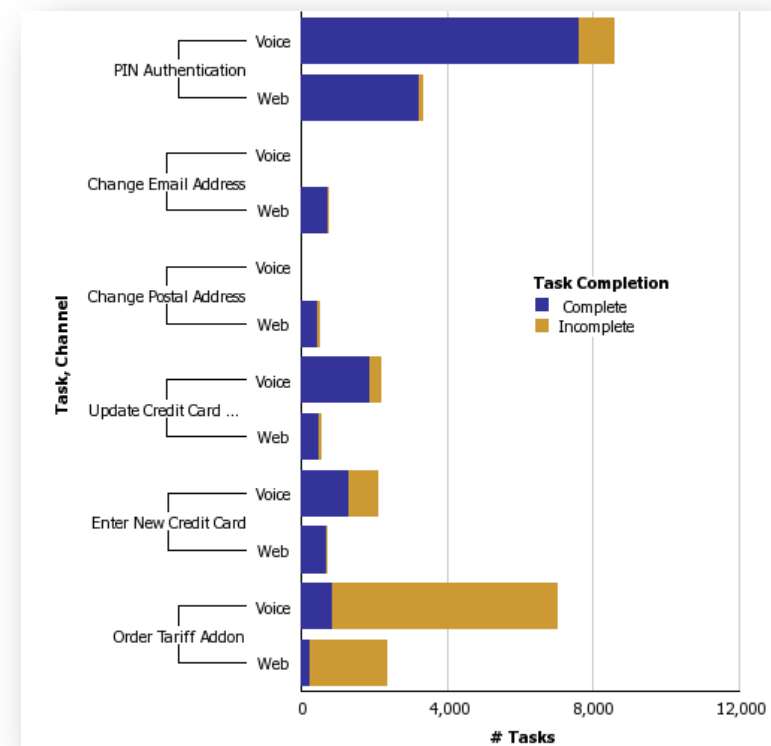
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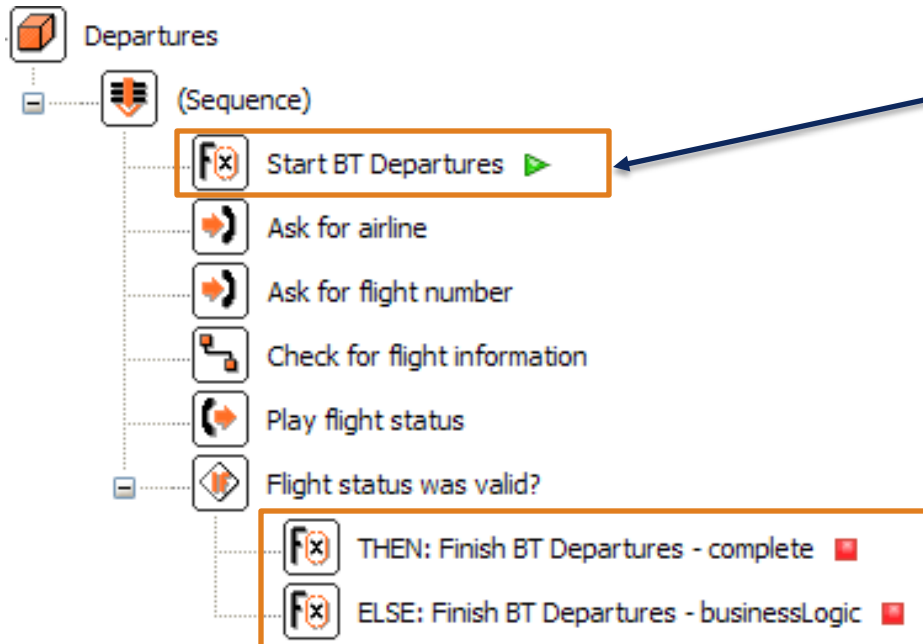
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- ▶ To measure the success of a self-service portal, you want to know:
 - How often do callers attempt ... to use a certain self-service?
 - ... to be routed to the right agent?
 - ... to get information?
 - And how successful are they in doing so?

→ Task Completion Rates



Control in the Call Flow



Start Business Task
(starting timer and counters)
Expression: STARTTASK

Finish Business Task
(marking it as Complete)
Expression: FINISHTASK

Note: A Business Task can be started/stopped at many places in the call flow and may span across several Modules.

Failure Reason

Example

 *Session termination*

➤ Caller hangs up

 *Back-end error*

➤ Back-end error occurs

 *Recognition error*

➤ Too many failed recognition attempts, so the caller is transferred to an agent

Business logic

➤ The caller enters an invalid flight number

  *Caller abort*

➤ Caller presses „0“ to talk to an agent

Task restart

➤ Caller starts over before finishing a task

Finishing Tasks Automatically

- Definition (...)
- Pre-/Postprocessing
- Event Handling (...)
 - Events (...)
 - ASR - No Input (1)
 - ASR - No Match (1)
 - ASR - Invalid Answer Limit (3)
 - Error - Connector (1)
 - Options
- Navigation (...)
- Tuning (...)
- OSDM
- Properties (...)



Events (...)

Specify objects to be processed at defined occurrence levels for various events.

Event	ASR - No Input (1)
Event	ASR - No Match (1)
Event	ASR - Invalid Answer Limit (3)

ASR - Invalid Answer Limit (3)

Label:

Layer:

Channel: Default

Occurrence: If >= 3

Event type: ASR - Invalid Answer Limit

Object: Exit on Error

Continuation: Return

Finish Tasks: All

Filtering: None

Values:

Send notification on event types "Error - Connector", "Error - Script", or "Error - Internal"

Event	Error - Connector (1)
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Options

Finishing Tasks - Overview

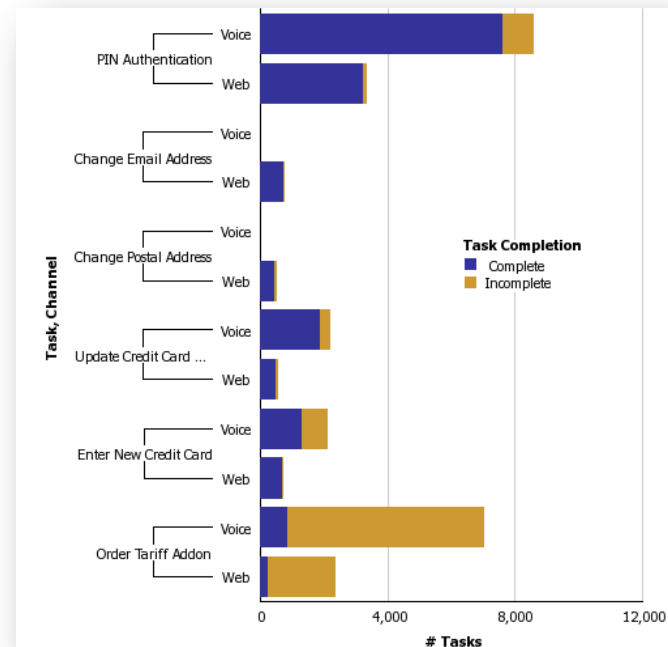


Condition		Task Status	Manual	Completion
Automatic assignment of completion status				
Event handler	ASR (NoMatch, ...)	Recognition failure	(X)	Incomplete
	Disconnect	Session termination	-	
	Error Connector	Backend error	(X)	
	Error [other]	Technical error	(X)	
	Caller Exit / Cancel	Caller abort	(X)	
Hyperlink				
Object	Goto, Exit			
<i>STARTTASK called again</i>		Task restart	-	
Manual assignment only				
<i>FINISHTASK("businessLogic")</i>		Business logic	X	
<i>FINISHTASK("complete")</i>		Complete	X	Complete

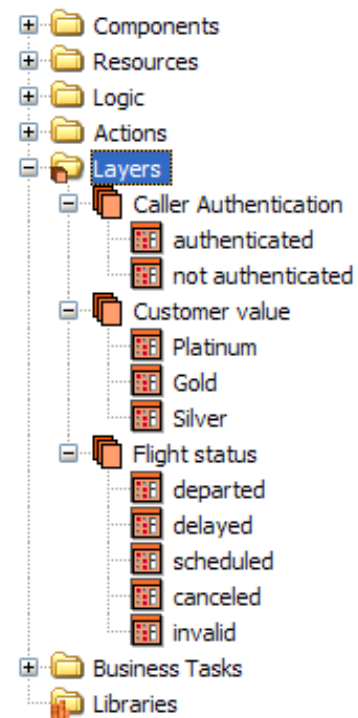
Reporting on Business Tasks



- ▶ Business Task Completion Rates
- ▶ Business Task Session Analysis



▶ Layers



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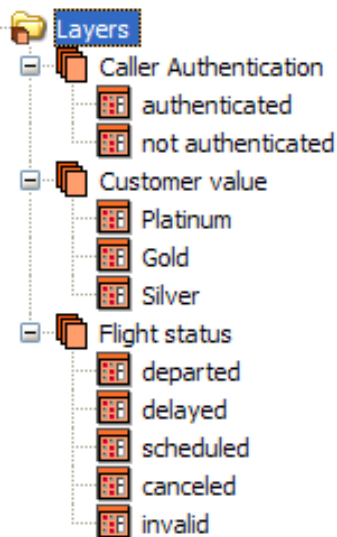
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Reporting on Layers

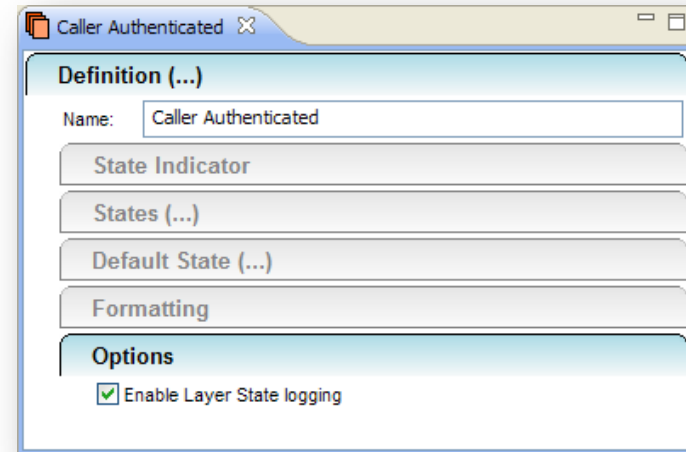
▶ “Layer Usage Analysis” Report



Layer	Layer State	Metrics	# Sessions	% Sessions	Avg Duration (sec)	Avg S
Caller Authentication	authenticated		6	50.00%	62	
	not authenticated		6	50.00%	57	
	Total		12	100.00%	60	
Flight status	departed		1	50.00%	50	
	delayed		1	50.00%	125	
	Total		2	100.00%	87	
Customer value	Platinum		1	16.67%	125	
	Gold		1	16.67%	54	
	Silver		4	66.67%	49	
	Total		6	100.00%	76	
Total			20	100.00%	74	

Layer State Logging

- ▶ Control which Layers will be logged
- ▶ Layer State logging should be **enabled** if the Layer ...
 - represents customer information (segment, value, region, language, ...)
 - represents customer preferences
 - represents any meaningful data that characterizes a call state or caller characteristics (Layer States are captured at the end of the call)
 - affects the dialog in any way



- ▶ Setting up Reporting in a development environment

How to setup VO Analyzer



- ▶ How to enable the Infostore DB if you are using the [free Developer Edition](#) of VoiceObjects Desktop for Eclipse:
 - <http://developers.voiceobjects.com/2009/06/30/how-to-enable-infostore-on-your-developer-edition/>

- ▶ How to setup VoiceObjects Analyzer with the [free edition of MicroStrategy 9](#):
 - <http://developers.voiceobjects.com/2009/07/20/voiceobjects-analyzer-for-microstrategy-9-free-edition/>

Questions?



- ▶ Next Voxeo Developer Jam Session:

Introducing Voxeo Prism Communication Server

- ▶ Wei Chen
VP Engineering, Unified Communications, Voxeo
- ▶ **Date:** Thursday, October 28, 2010
- ▶ **Time:** 8am PDT, 11am EDT, 5pm EST