



**VoiceObjects**



**Customer Behavior Analysis**  
Getting the Most out of Speech Statistics

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**Dir. Product Management**



# Unlock Your Customer Phone Service



- How can I see what's happening?
- Are my customers being serviced?
- What services do they prefer?
- ...

A large, glowing yellow lightbulb icon with a grey outline, representing an idea or intelligence.

## Customer Behavior Intelligence

- Understand **what** customers are doing, and **why** they succeed or fail
  - Evaluate the success rates of **business tasks**
  - Identify the effects of **application changes**
  - Identify application areas that need **tuning**
  - Understand changes of **customer behavior**



# Agenda

- Core Concepts
  - The Phone Application Server
  - Analysis in the Application Context
  - Infostore – data capture
  - Analyzer – Business Intelligence concepts
  
- Demo
  - VoiceObjects Analyzer for Cognos



# The Phone Application Server

Service Creation Environment

Service Execution Environment

Service Analysis Environment



IVR, Media Platform

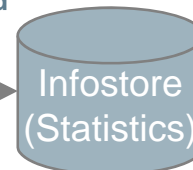
VoiceXML

VoiceObjects Desktop IDE

Application definition

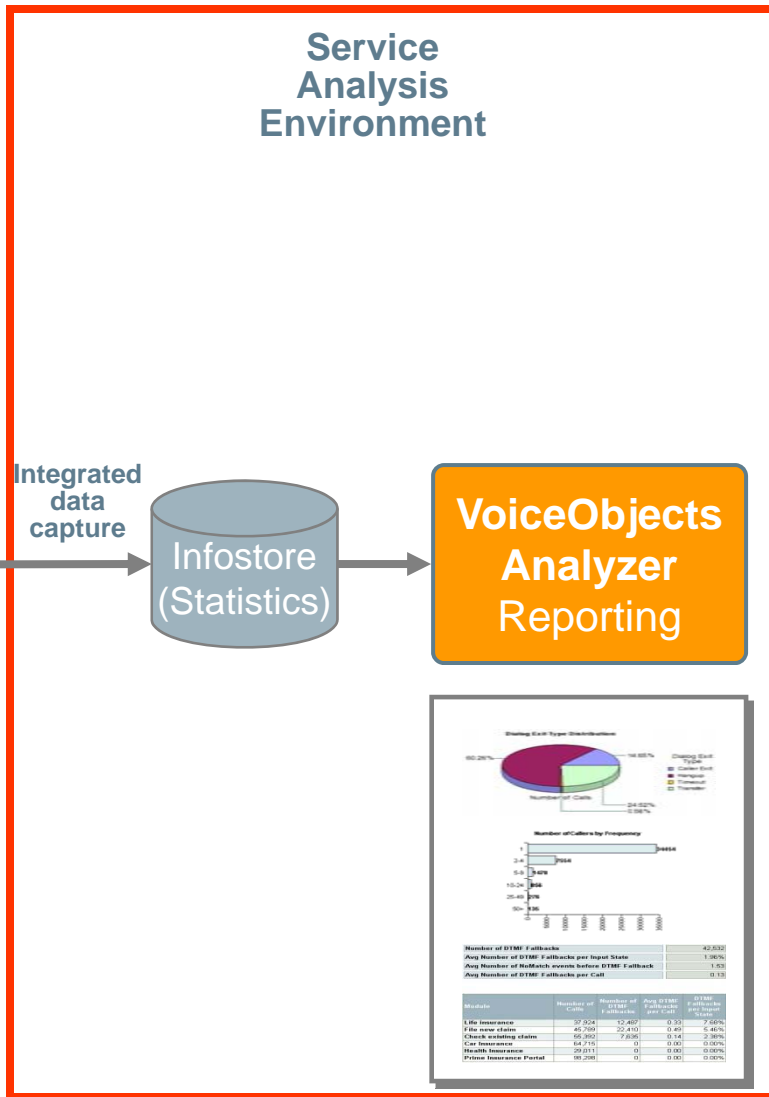
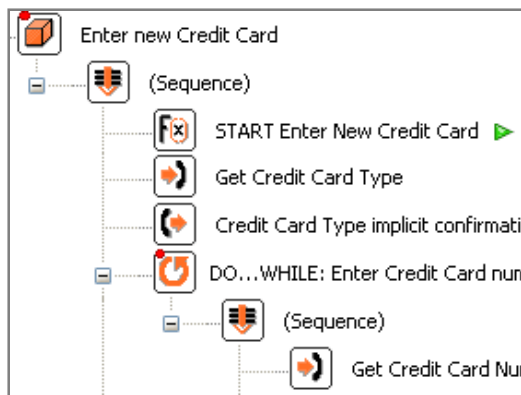
VoiceObjects Phone Application Server

Integrated data capture



VoiceObjects Analyzer Reporting

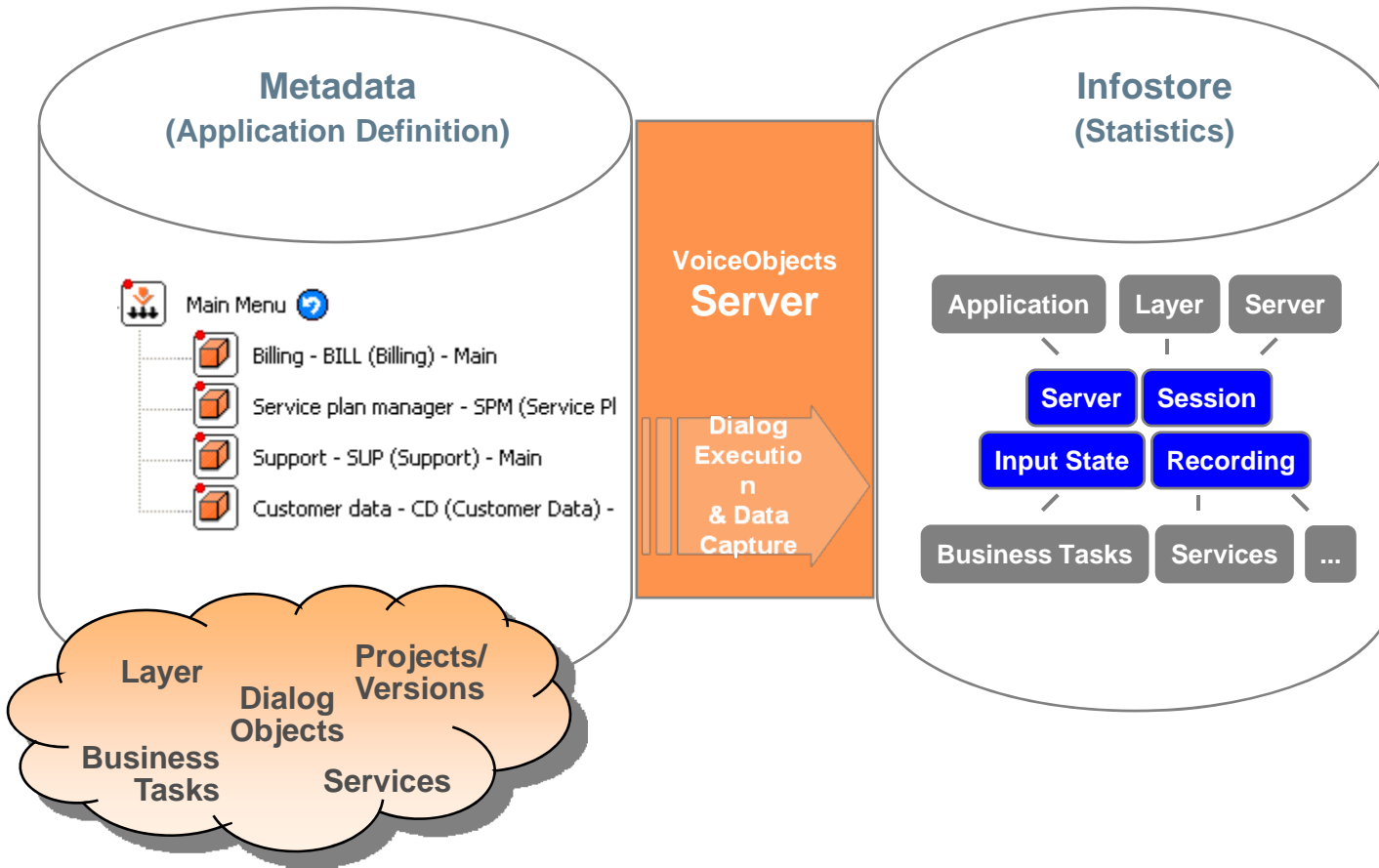
Back-End Systems Legacy | CRM | ERP



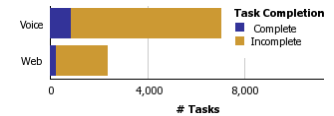


# Analysis in the Application Context

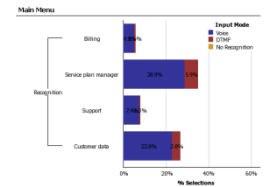
## VO Analyzer (Reporting & Analysis)



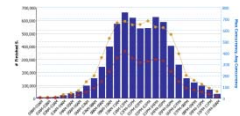
### Business & Caller Behavior



### Development & Tuning



### Administration & Maintenance

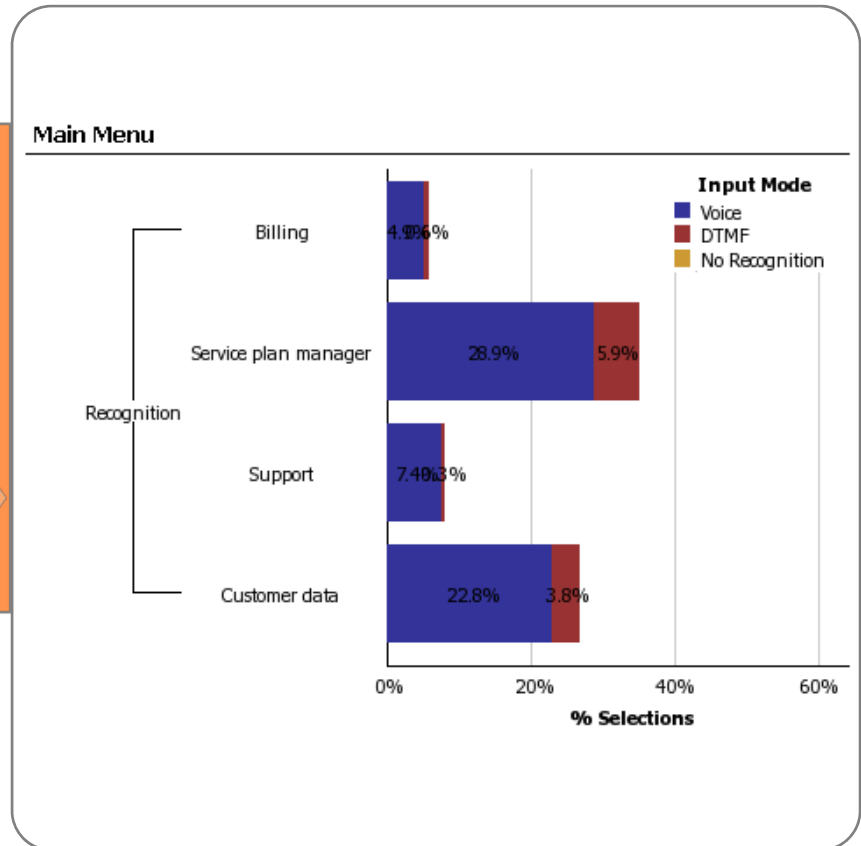
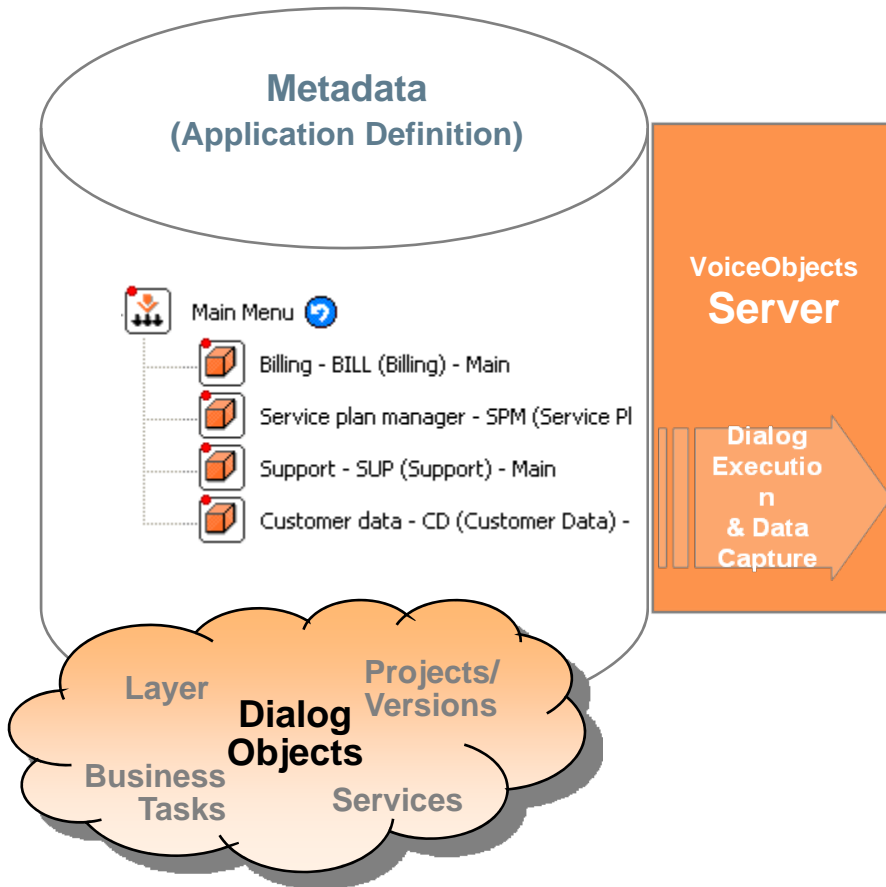




# Analysis in the Application Context

Context: Dialog Objects

## Development & Tuning



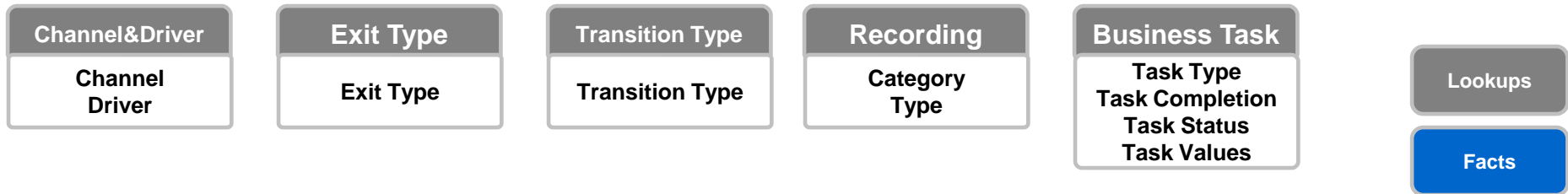
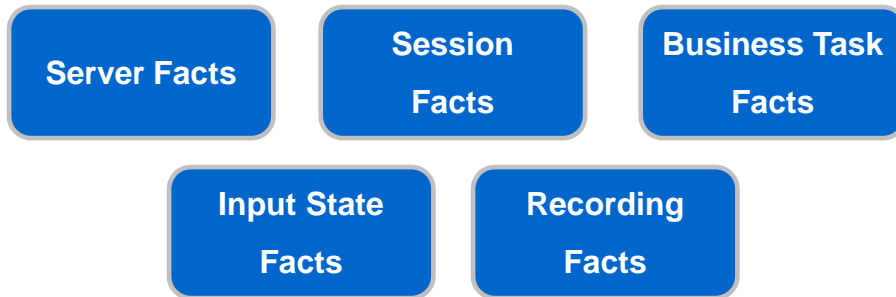
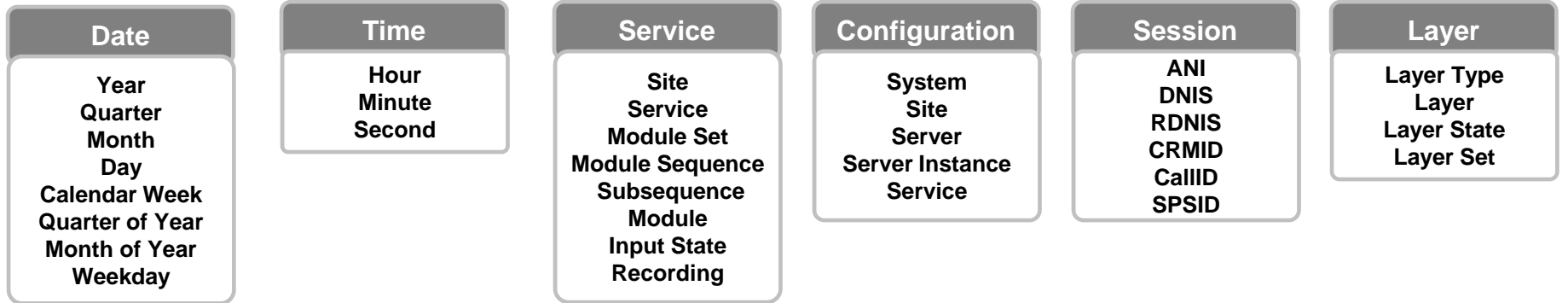


# Infostore

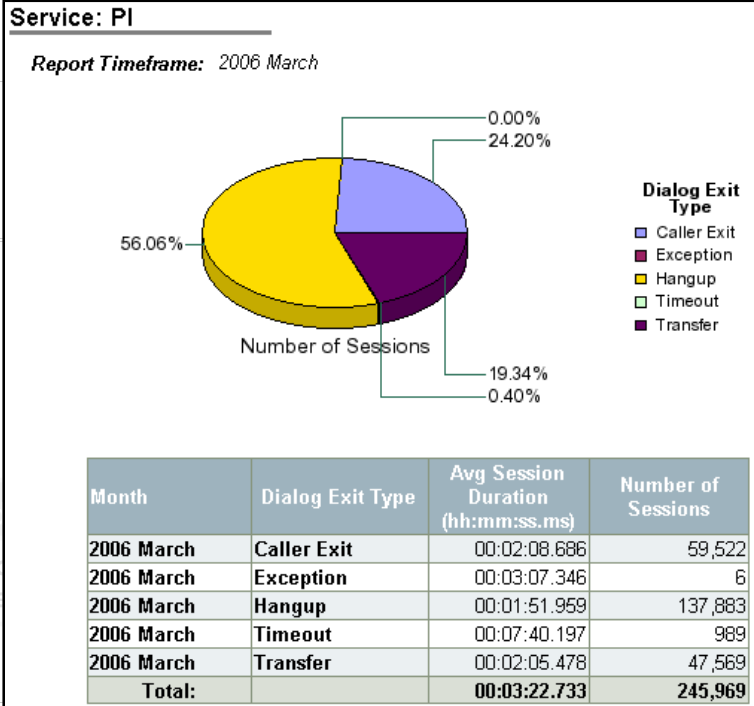
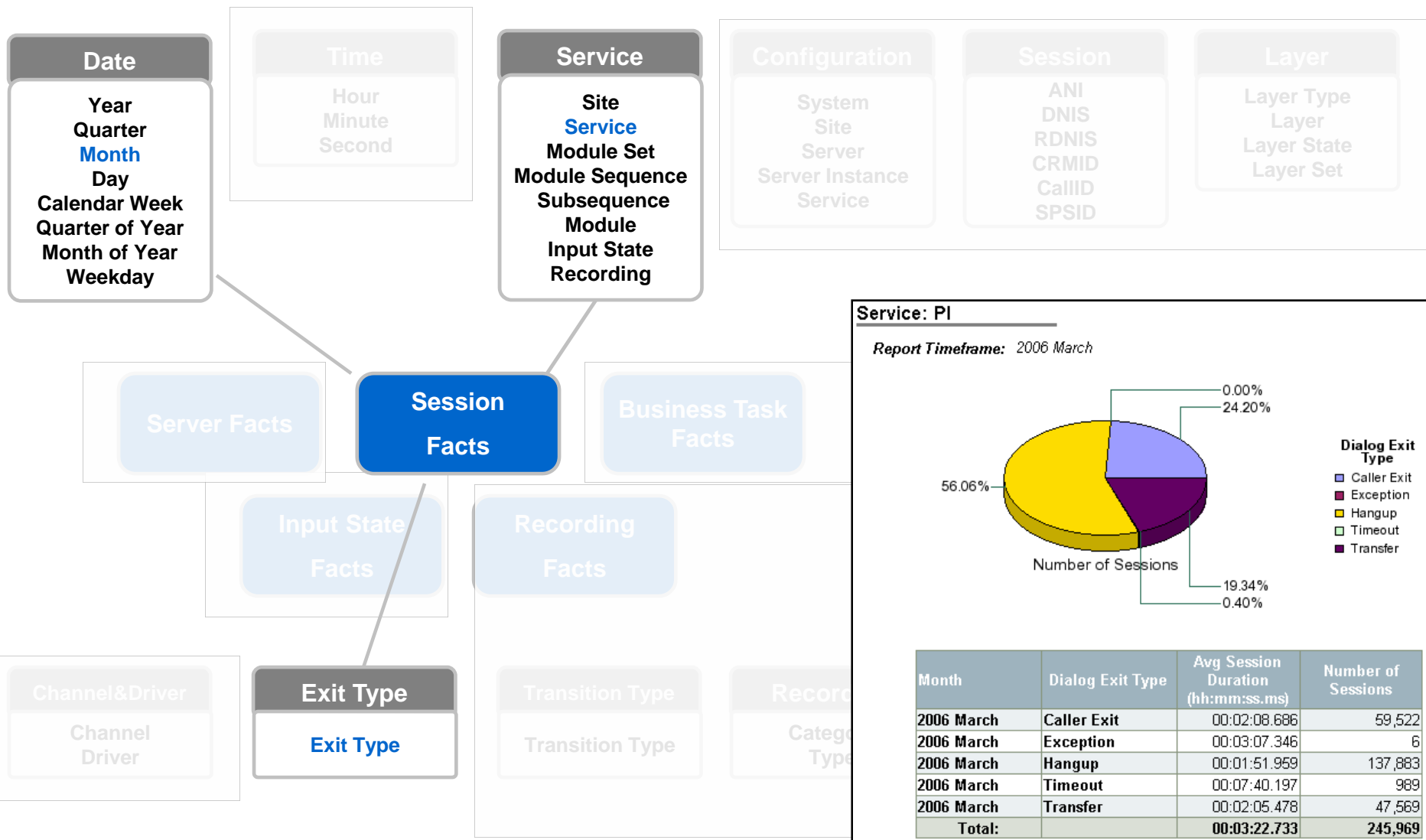
- Storage in Relation Database System
- Table schema optimized for use with Business Intelligence and Query tools
- Real time logging and analysis
- No extraction, transformation, load required



# Infostore Dimensional Model



# Infostore Dimensional Model





# VoiceObjects Analyzer

Management Business Mgr. CallCenter Mgr. Developer Designer Admins



**Reporting**

**Analysis**

**Dashboards**

**Data Mining**

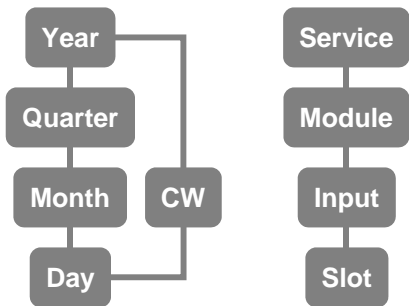
**Alerts&Broadcast**



VoiceObjects Analyzer

Business Intelligence Platform

**Dimensional Model**  
Dimensions, hierarchies & attributes



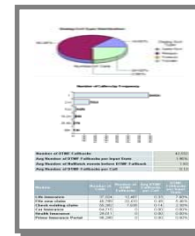
**Metrics**

Simple & complex metrics on Business, Server, Call and Recognition level

- Number of Sessions
- Average Number of Sessions
- Total Session Duration
- Average Session Duration
- Input States with at least 1 No Match
- Number of Successful Input States
- Average Confidence
- Percentage of frequent callers
- ...

**Standard Reports**

50+ reports in three categories



- Application Development and Tuning
- Business and Caller Analysis
- Administration and Maintenance

**Open and Extendible**  
Optionally:

- Modify standard reports
- Create custom reports
- Add custom, CTI, IVR data

# Infostore VoiceObjects Server data capture



VoiceObjects

Customer  
Behavior  
Intelligence

## Dominant Path Analysis

*Interactive caller  
navigation pattern  
analysis*

## Personalization Statistics

*Service performance  
by customer segment*

## Business Tasks

*Transaction completion  
rates with detailed  
failure analysis*

Application  
& Grammar  
Tuning

## ASR Performance

*Speech recognition  
performance analysis  
Event counters  
Confidence levels*

## Utterance Statistics

*Grammar coverage,  
Word count stats,  
DTMF Fallback*

## Utterance Recordings

*Access to utterance  
recordings in  
application context*

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



# Demo

## Analysis of ...

- Call Volume
- Menu Navigation
- Business Tasks
- Individual Calls
- Recognition Quality
- Layer (Personalization)
- Dominant Path

# Service Analysis

## VoiceObjects Infostore and Analyzer



VoiceObjects

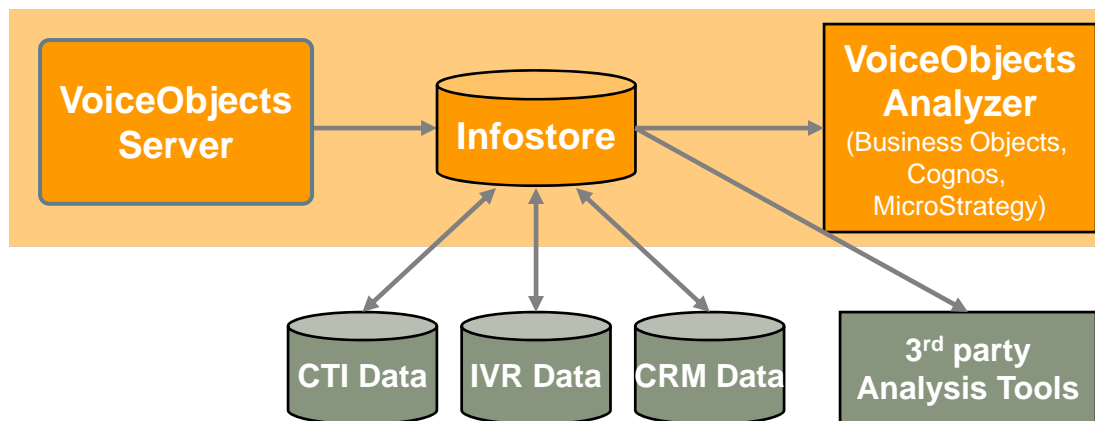
- Out-of-the-box Data Capture by VoiceObjects Server
  - Dimensional Data model optimized for BI analysis
  - Integrates with data from ASR, CTI, and CRM
- Analysis and Reporting
  - Based on standard business intelligence tools
  - 50+ predefined Reports, based on real-time data
  - Extends existing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

 **opusresearch**

**Highest Rated  
Analytics Package  
in the Market\***

\* Opus Research Study: Analytics and Reporting for Phone-Based Self-Service.

Available for download at [VoiceObjects.com](http://VoiceObjects.com)

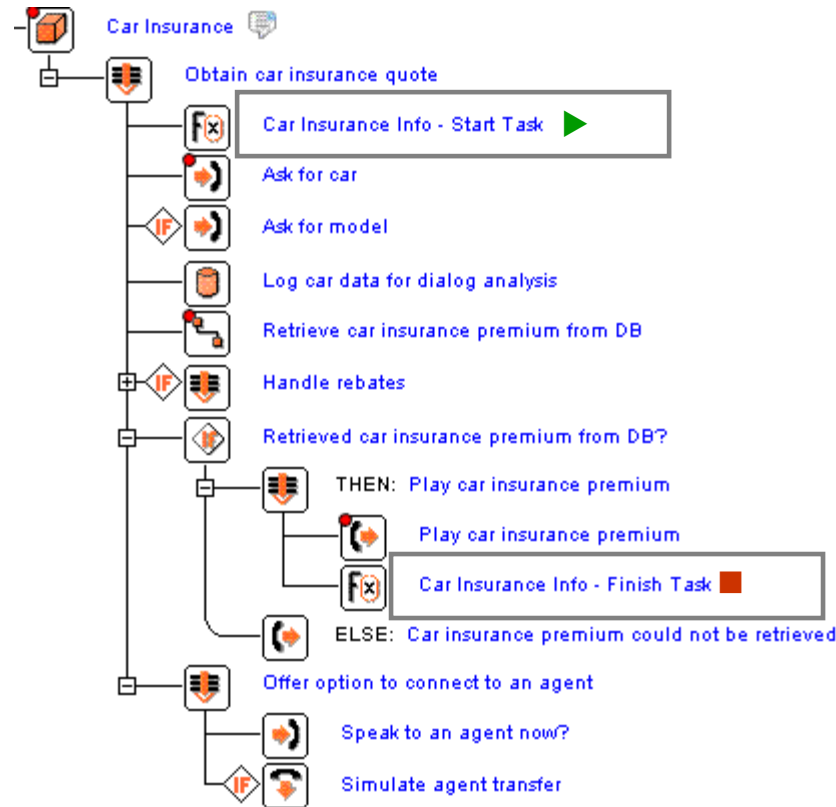




Thank You!

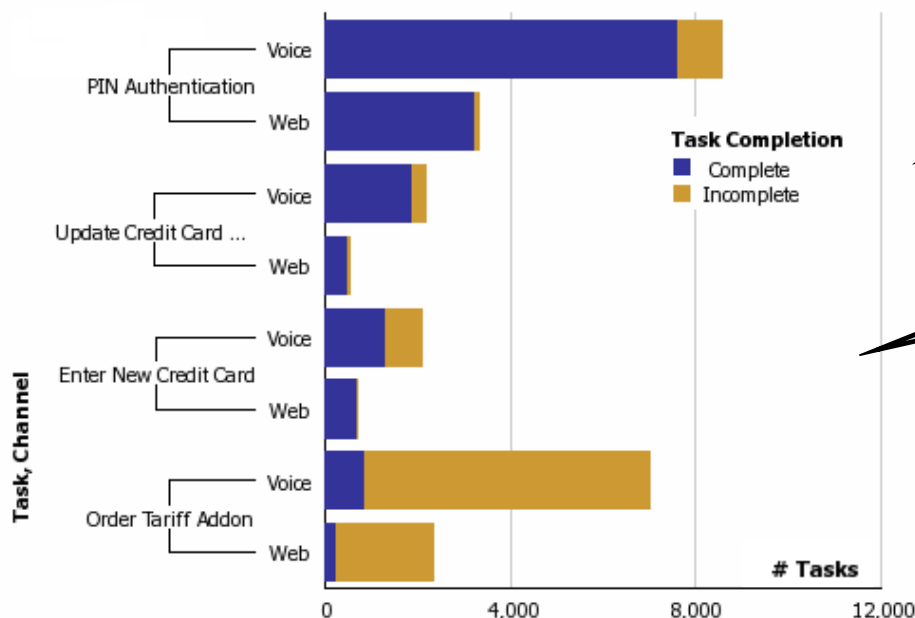
# Questions





- Business tasks represent a **business view** „on top“ of the call flow definition
- Task execution results are **automatically logged** to Infostore
- Business task related **metrics**
  - Number of attempts
  - Completion/success rate
  - Failure rate (by category)
  - Task completion duration
  - Caller behavior analysis during task completion
  - Aggregated metrics on recognition quality

# 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		
		Complete	Incomplete	Caller abort	Recognition failure	Session termination				
		# Tasks	%	# Tasks	%	# Tasks	%	# Tasks	%	
Authentication	PIN Authentication	7,640	89%	119	1%	50	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
		<b>11,723</b>		<b>6,038</b>		<b>948</b>		<b>1,157</b>		<b>19,866</b>

"Update Expiration Date" was very successful ...

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