Amdocs Intelligent Decision Automation
Overview

Amdocs – Craig Hanson
The Leader in Customer Experience Systems Innovation

A Unique Business Model

Service Provider Industry Focus

Leading BSS, OSS & Service Delivery Products

Strategic Services

$3.0B in revenue

$410M operating income

$1.4B in cash

More than 19,000 employees

Over 60 countries


(May 2010)

Highest Possible Overall Rating in BSS Scorecard and OSS Scorecard Reports.

(Dec 2009, Jan 2010)

TM Forum’s “Industry Leadership” award.

(June 2010)
What Is Amdocs Intelligent Decision Automation (AIDA)?

- **Amdocs Intelligent Decision Automation (AIDA)** is a closed-loop, self-learning system that lets you…
  - See what happens, when it happens
  - Understand what it means to your business
  - Take action and enforce business policy – automatically, intelligently and in business real-time

By uniquely combining technologies AIDA is able to better understand and predict the behavior of customers, providing individualized treatment to achieve specific business targets:

- Increasing RPU by selling them the right products
- Decreasing churn by treating customers based on their specific likes, needs, and recent issues
- Reducing cost of operations by proactively preventing issues and optimizing cross-channel care functions
Requirements

> Massive scale, billions of events/day -> 100M customers
> Business real time inferencing and decisioning (100ms response time)
> Uncoupled integration – open world model –
> M:M:M : atomic -> abstraction : structured and unstructured data
> Cohesive past, present, and real time view World View
> True user managed and defined schema and decision factors (concepts)
> User defined policy, decisions, and the logic to manage concepts
> Closed loop learning: decision->actions->effect->learning
> Low cost .05 customer/year
AIDA Runtime Architecture

Events

- Amdocs Event Collector

Data Sources
- Revenue Mgt
- Ordering
- CRM
- Network
- Business Intelligence
- Other Systems

Any internal or external system
Structured or Unstructured

Decision Engine

- Application Server - Space Based
- Semantic Inference Engine and Business Rules
- Scheduled Events
- Event Ingestion
- “Sesame” Performance cache
- RDF Triple Store DB
- Bayesian Belief Network
- Amdocs Integration Framework

Actions

- CRM
- Other Systems

Operational Systems
Any operational system
How the AIDA Inference Engine Works

Semantic Concept Model
The model defines the concepts including the high level business concepts
The model contains the relationship between concepts including the dependencies

Inference
When an event occurs the event handler rule fires for that event
  Evaluates the event message
  Evaluates the existing ontology
  Determines which semantic instances to create or update

When any data changes, the inference engine fires in a “When - Then” style of computing, updating all “Automatic” concepts.
Custom concept rules are fired if necessary. This creates a chain of updates

When a “on demand” concept is needed the inference engine finds and computes all of the dependant concepts

Machine learning
When a concept is dependent on “machine learned” information the inference engine manages the invocation and timing of interfacing
# Why a triple Store, why Allegrograph

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<th>Characteristic</th>
<th>Triple Store (AG)</th>
<th>Relational</th>
<th>No-SQL</th>
<th>Multi-dimensional</th>
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<td>Dynamic data model</td>
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<td>Inference</td>
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The role played by an Individual or Organization in a business relationship with the service provider in which they intend to buy, buy, or receive products or services from the service provider.
Customer Payment Pattern

1. Find all of the Previous Bills within 6 months.
2. If all bills have Payment Timeliness equal to early, then Payment Pattern is a good payer.
3. Otherwise, if all bills have Payment Timeliness equal to late, then Payment Pattern is a bad payer.
4. Otherwise, if at least 75% of Earlier Bills are early or on time and later bills are late, then Payment Pattern is a worsening payer.
5. If at least 50% of Earlier Bills are late and all later bills are on time or early, then Payment Pattern is an improving payer.
The Applications

Guided Interaction Advisor (GA in May)
Virtual Agent (GA in September)
**Guided Interaction Advisor (GIA)**

> A pre-built Ontology and rule set in AIDA designed to address key issues in call center interaction

> Amdocs Guided Interaction Advisor
  > *Anticipates* reason for the customer interaction
  > Then *Automates* access to the required information and *Guides* the flow of action and decision making

> **Business Benefits**
  > Eliminates system and agent diagnosis time
  > Provides consistent and efficient call handling
  > Increases agent and customer satisfaction

> **Anticipated benefits based on 100K actual accounts assessment:**
  > AHT reduction of 10-15%
  > FCR improvement of 10-15%
  > CSR training time reduction of 15-20%
How Guided Interaction Advisor Reduces AHT

Example

* In addition to displaying the bill, GIA returns multiple “next” actions such as dispute charge, adjust the fee, make payment depending on high level concepts and policy

1.3

Charges are not typical
Bill has charges for fees.

Bill has abnormal fee
fee is “Returned check”

Charges are not normal
Amount is normal

Bill Due Date is Oct 1
Third Party Charges are normal

GIA Looks at events including bill sent event
Finds abnormal fee – Returned Check
Probability that the call is motivated by fee vs. other issues
Compute High-level concepts
Examine company policy for treating this customer
Determine actions for each probable issues
Presents contextually relevant info, streamlined action

Guided Interaction Advisor

Assess Probability
Motivation for call
- Abnormal Fee 47%
- Pay Bill 23%
- Device Exchange 12%
- Customer Cancel 5%

High level Concepts
- High value customer
- Long time customer
- Improving payer
- Contract expiring

Policy action rules

CIM actions

Abnormal fee *
Display bill
Highlight fee on bill
Script message
Prepare one click action
Highlight one click action

Pay Bill
Educate free on-line pay
Prepare one click pay
Guided Interaction Advisor

Events collected in real time

Transformed into a connected graph of business concepts

Predictions & Actions

- Plan Overage
- Bill greater than last month
- Prorates
- Roaming charges
- Third Party Charges
- Abnormal fee
- Rate increases
- Charge dispute
- First bill
- Past due amount
- Pay bill
- Customer Cancellation
- Reactivation
- Device activation
- Device education
- Device exchange
- Device Lost
- Device not working
- Device resume
- Service data not working
- Service text not working
- Service voice not working

Use Case Extensions

- Subjective
- Patterns
- Trends
- Geospatial
- Time
- Probability
- Absence of occurrence

Highly User extensible ...
Presenting Insight to CSR

- Prediction on reason for the call – ranked by probability
- Recommended actions – based on best ROI
- Prioritized Recommended treatment and script
- Process opens relevant screen for reference and action