



**DO MORE  
IN THE  
CONNECTED  
WORLD**

**EXPAND QUICKER  
DRIVE EXPERIENCE  
RUN LEANER**

# 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

**Leading Telecom Operations Management Systems Vendor Worldwide.**

*(May 2010)*

**Gartner**

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

*(Dec 2009, Jan 2010)*

**Gartner**

**TM Forum's "Industry Leadership" award.**

*(June 2010)*



# What Is Amdocs Intelligent Decision Automation (AIDA)?

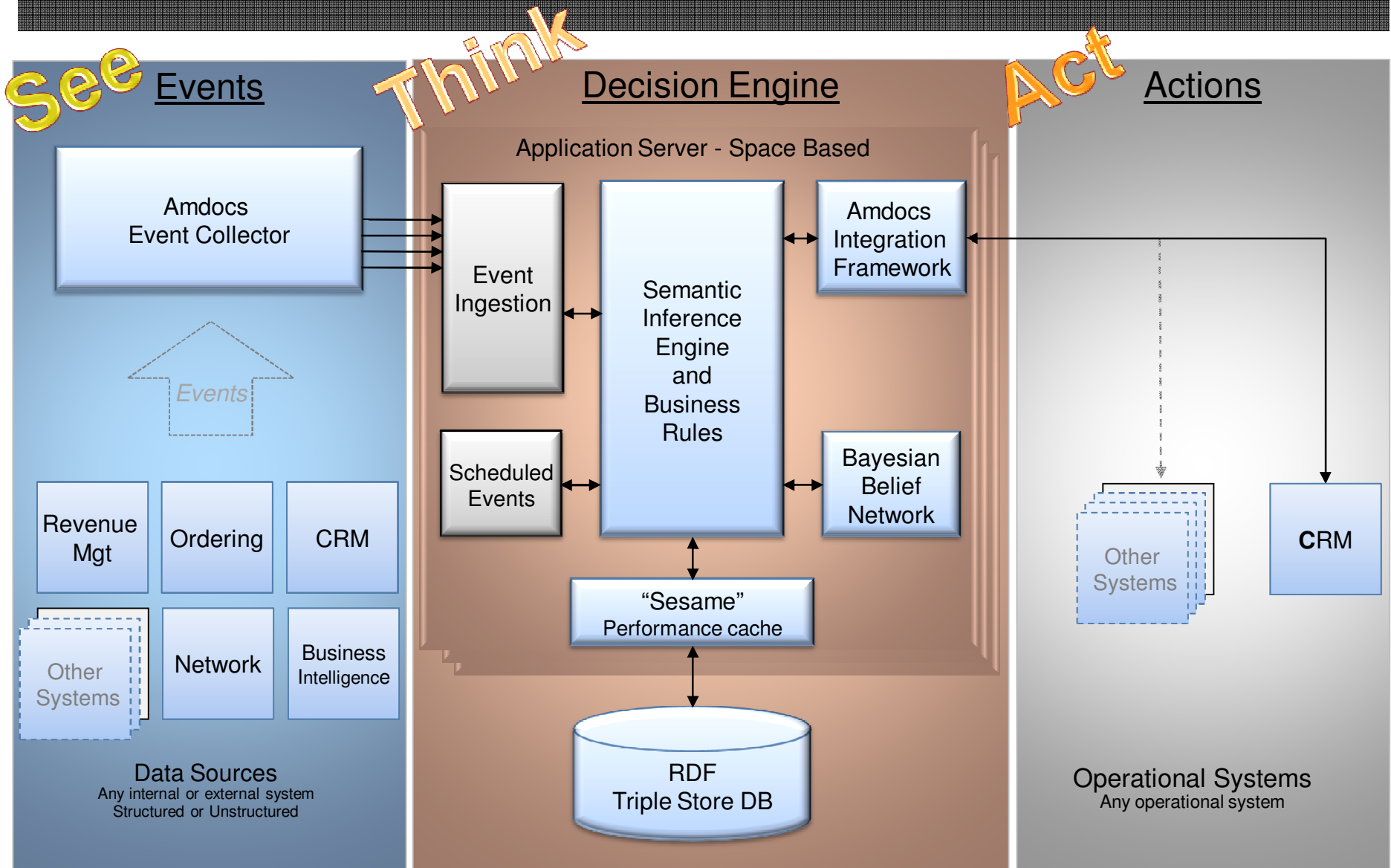
- > **Amdocs Intelligent Decision Automation (AIDA)** is a closed-loop, self-learning system that lets you...
  - > **See** what happens, when it happens
  - > **Understand** what it means to your business
  - > **Take action** and enforce business policy – automatically, intelligently and in business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

See  
Think  
Act

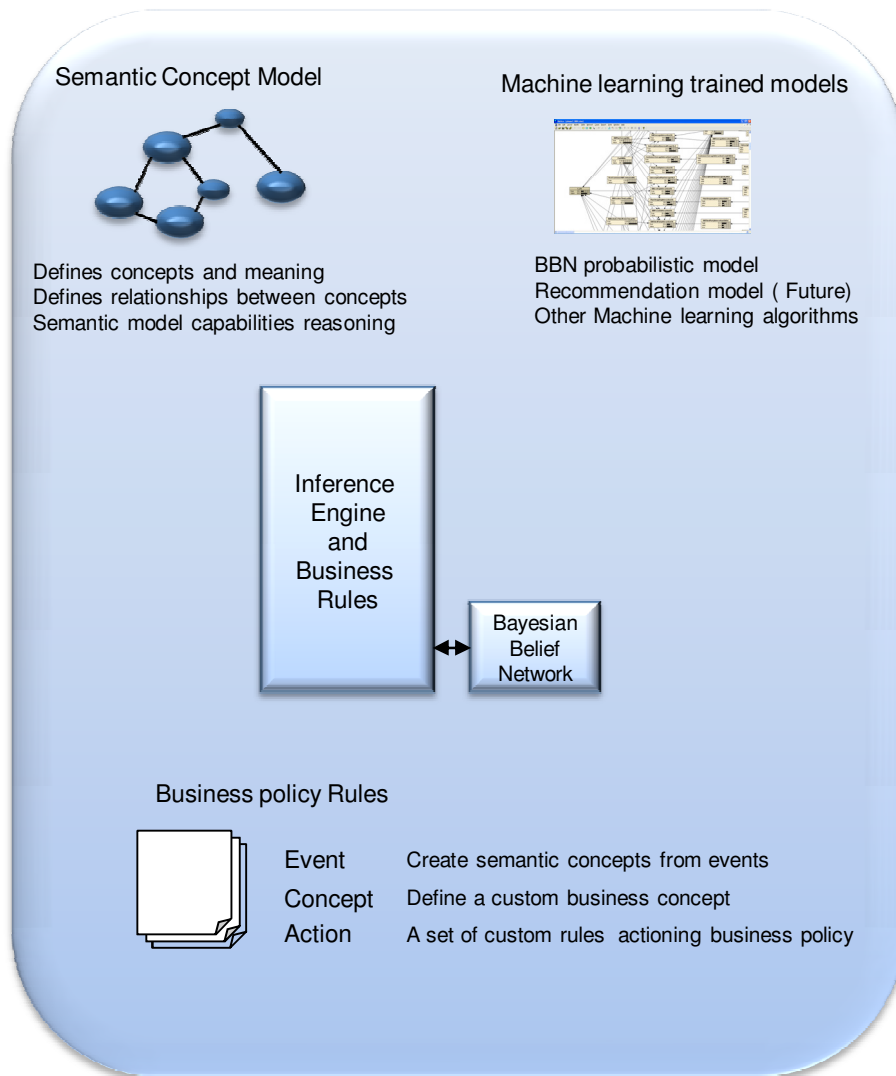
# Requirements

- > 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



# 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

Characteristic	Triple Store (AG )	Relational	No-SQL	Multi-dimensional
Dynamic data model				
Inference				
Real Time				
Scalability				
Semantic Capabilities & M:M:M				
Unstructured data				
TCO				

AIDA Business Composer

Library Composer Demo Application

RELATIONSHIP MAP    DEPENDENCY MAP

TAG    PATH    Filter Map    Search Map

Customer

ENTITIES    ACTIONS    PROCEDURES    EVENTS

BUSINESS ENTITIES & CONCEPTS

Entity Name

- Customer
  - Acquisition Date
  - Status
  - Status History
  - Type
  - Call Frequency
  - Churn Propensity
  - Collection Risk
  - Payment Pattern
- Customer Accounts
- Customer Action
- Customer Bill
- Customer Devices
- Customer Problems

CONSTANTS

**Customer**  
Description. 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 p



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Customer Payment Pattern

VIEW EDIT DEPLOY

Customer Payment Pattern

LAST MODIFIED: 02/12/2010 MODIFIED BY: Greg Sloan VERSION: 1.3 COMPUTED:Automatically

DESCRIPTION: Determine the payment pattern for the customer by evaluating payments determining good payer, bad payer, worsening payer or improving payer

- Find all of the Previous Bills Within 6 months
- If all bills have Payment Timeliness equal to early then Payment Pattern is good payer
- otherwise if all bills have Payment Timeliness equal to late then Payment Pattern is bad payer
- otherwise if at least 75% of Earlier Bills are early or on time and later bills are late then Payment Pattern is worsening payer
- if At least 50% of Earlier Bills are Late and all later bills are On time or early then Payment Pattern is Improving payer

# The Applications

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

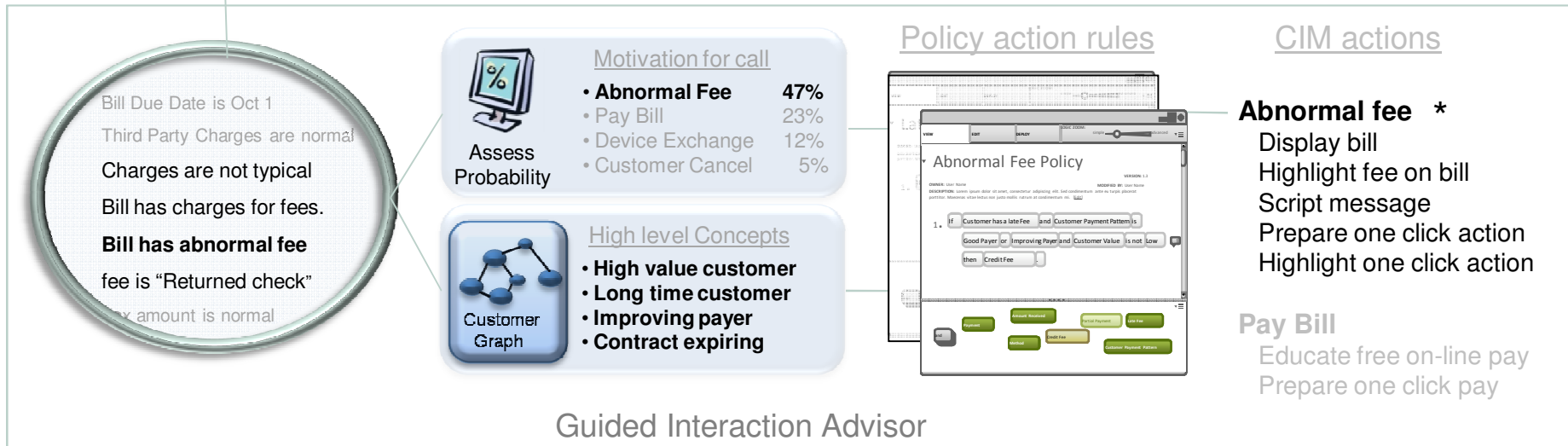
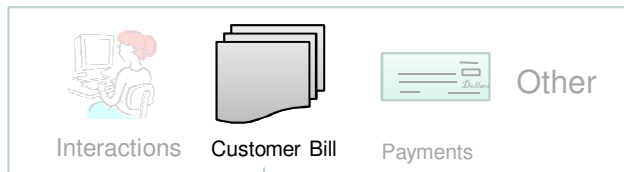
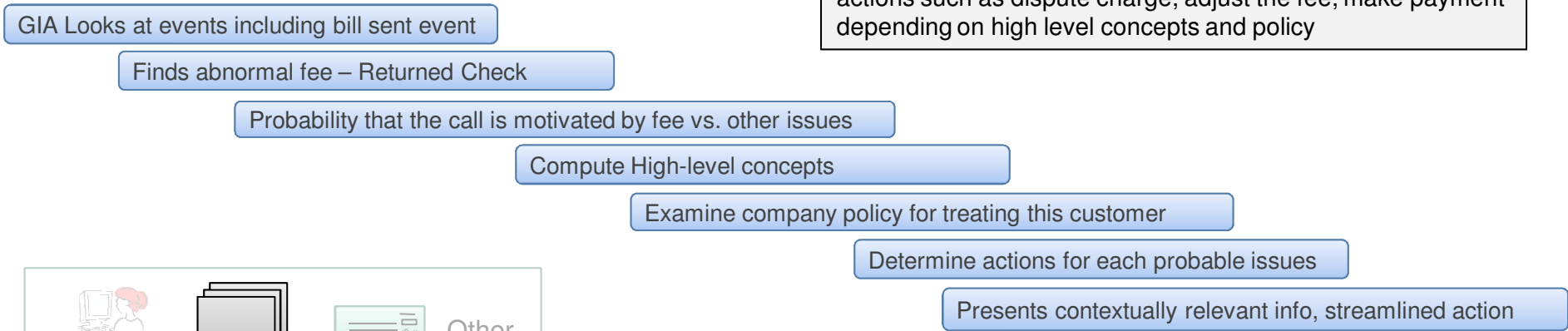
# Guided Interaction Advisor (GIA)

- > 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



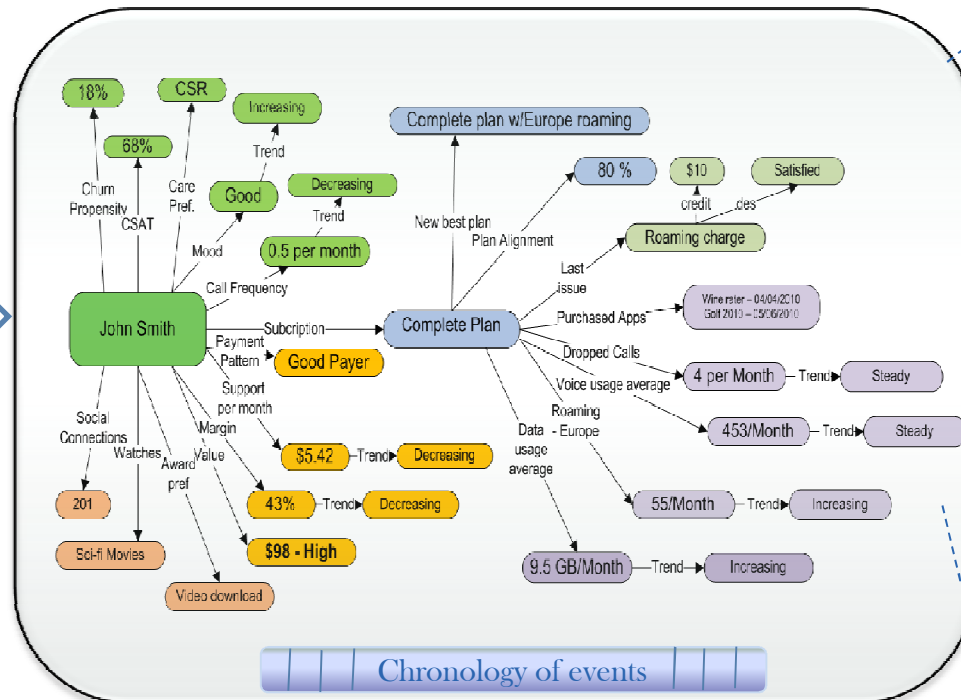
# Guided Interaction Advisor

Events collected in real time

- Interactions
- Orders
- Bills
- Payments
- Collections
- Charge dispute
- Customer
- Pay instructions
- Individual
- Device Activated
- Device heartbeat
- Subscriptions
- Device changes

Extensible

Transformed into a connected graph of business concepts



Subjective Patterns Trends Geospatial Time Probability Absence of occurrence High User extensible ...

"good payer"  
 "always pays 2 days late"  
 "improving payer"  
 "within 5 miles of the tower"  
 "within 5 minutes of an outage"  
 "probably will call about the bill"  
 "missed payment"

Predictions & Actions

Probability of call motivation

- 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

# Presenting Insight to CSR

The screenshot shows the Amdocs Customer Interaction Manager interface. At the top, there is a menu bar with options: File, Connect, View, Create, Search, Workflow, Actions, Help. Below the menu, there are communication icons for phone, email, and chat, along with user information for 'Alice' and 'New Home' buttons. The main content area is titled 'Alice Smith is calling about' and lists several reasons for the call: 'Device Not Working', 'Abnormal Fee', and 'Device Education'. Below this, a 'Recommended Actions' section is highlighted with a yellow box, containing 'Troubleshoot Phone' and 'Shop Phone'. A 'Script for Selected Action' section is also highlighted, containing a pre-written script: '<Ms. Smith>, our records indicate that since activating your new <Nokia E71> there has not been any text message activity on your account. Are you able to send and receive text messages?'. The central part of the interface shows a 'Device Subscription Overview' for a device with ID 2007\_9200000, including fields for 'Subscription Number', 'Full Name', 'Serial Number' (352925021846623), and 'Agent' (Client). To the right of this overview are several action buttons: 'Check Pulse', 'Service Configuration', 'Applications Management', 'Device Control', and 'Diagnostics'. At the bottom, there is a 'Device Interactions' section with a search bar and a table of records. The table has columns for 'Id', 'Category', and 'Title', and contains three records related to messaging server troubleshooting. Annotations with callout boxes are overlaid on the interface: one points to the call reasons list with the text 'Prediction on reason for the call – ranked by probability'; another points to the recommended actions with 'Recommended actions – based on best ROI'; a third points to the script with 'Prioritized Recommended treatment and script'; and a fourth points to the right-hand action buttons with 'Process opens relevant screen for reference and action'.