



# Configuring Complex On-Demand Services with Business Rules

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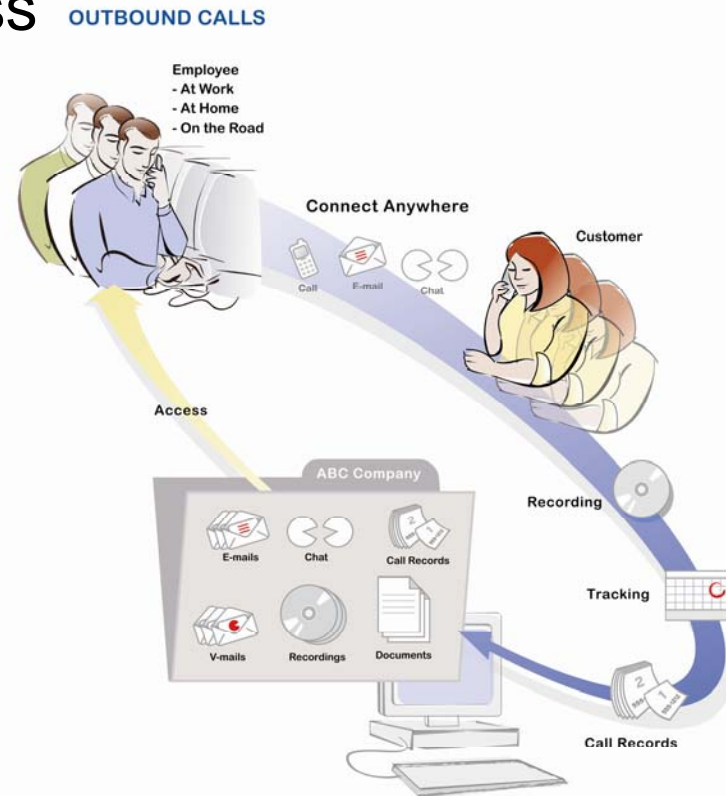
Dr. Jacob Feldman, CTO and Founder, OpenRules, Inc.

# Outline

- Visitar Introduction
- General Business Domain (CRM & Interaction) Background
- Visitar's Business Objectives
- The Business & Technology Challenges
- How we approached the challenges using a Business Rule Management System
- The Results
- A Few Lessons Learned

# Visitar Introduction

- Provider of Hosted Business Solutions that combine business applications with interaction capabilities
  - > CRM + Advanced Telephony
- Founded in 2005
- Headquarters in Raleigh, NC
- Mgmt team with years of experience working together to deploy advanced solutions for large enterprises
- Partnered with OpenRules, Inc. to build a rules-based multi-tenant infrastructure



# Customer Relationship Management Today



- In General:
  - > Personalized interactions are the drivers of customer relationships
  - > CRM tools are disconnected from most interaction environments
  - > Extra work required results in incomplete customer records causing inefficiency
- For Small & Medium Businesses and/or “On-Demand” buyers:
  - > Configuration out-of-reach for non-technical staff
  - > Adaptation of workflow (customization of the core CRM flow) on a per-business/enterprise – strictly a Professional/Consultative Services domain task

# Contact Centers Challenges

- Manage Complex Customer Interactions
- Link telephony (and other touchpoints) with customer information
- Focus is efficiency
- Technology is costly and complex to implement & manage – generally out of reach for “On-Demand”
- Using traditional “call-center-like/capable” business solutions are generally out of reach of the Small and Medium Business (SMB) Marketplace

# Visitar's Objective and Challenges

- Objective:
  - > Bring the power of enterprise contact center features and functionality to SMB, without the cost and complexity
- Technology Challenges:
  - > Extend traditional premise based applications to a multi-tenant, on-demand architecture
  - > Provide pre-integrated solutions that are manageable by business users, not technology specialists
  - > Build rapidly & reliably with “extreme” development budget limitations consistent with a venture backed start-up
- Actually, the same kind of pressures any IT organization faces with delivering functionality to their business customers.....

# The Path to Delivery....

- How would you do it (and make it On-Demand)?
- The application/business services require at least the following “engines” fully integrated
  - > Hardware & OS Platform(s)
  - > Web platform engine
  - > CRM Application
    - RDBMS
    - GUI
  - > Telephony Engine(s)
    - Softswitch
    - ACD
    - IVR
    - Recording
    - RDBMS
  - > Configuration, Management & Operations “supervisory” engines

# Affordable, multi-tenant, easy....

- In the On-Demand (Software as a Service) business.....
  - > Cannot repeat the issues of the “ASP” era
    - Applications that are not multi-tenant require virtualization which dramatically increases the horsepower & management/maintenance task
    - Application customization on a per-customer basis
    - Speed to full implementation and use
    - etc.
  
- Appropriate use of a Business Rules Management System in the core architecture offers a “ray of hope!”



# Technology Approach

- Leverage a Variety of Best-of-Breed Open Source Technologies
  - > OpenRules, Asterisk, SugarCRM, Linux, Apache, MySQL, and others
- Enhance with Visitar Intellectual Property
  - > Multi-tenancy capability through rules-driven configuration management
  - > Real-time communications controller that enables delivery of “real” Computer Telephony Integration (CTI) via the web (thin client only!)
- Configure a Reliable Systems Architecture
  - > Fault Tolerant/Fail Over Protection
- Install in World-Class Hosting Facility
- Activate Users on Enrollment
  - > Rules-based Self-Service

# Use of Open Source Products

- Visitor takes on burden of managing Open Source code and version changes within its own production facilities
  - > Customer gets all the benefits of Open Source
  - > Support by Visitor developers
- Key Technologies
  - > **OpenRules** – Business Rules and Workflow Automation Engine. Used to drive overall solution configuration and behavior
  - > **Asterisk** – Telephony Engine. Call Handling, Outbound Connections, Call Routing, Voice Response, Call Recording
  - > **SugarCRM** – Customer Relationship Management, Sales Force Automation, Marketing Campaigns, Customer Care
  - > **LAMP** (Linux, Apache, MySQL, PHP) – Infrastructure, Database and Operating Environment

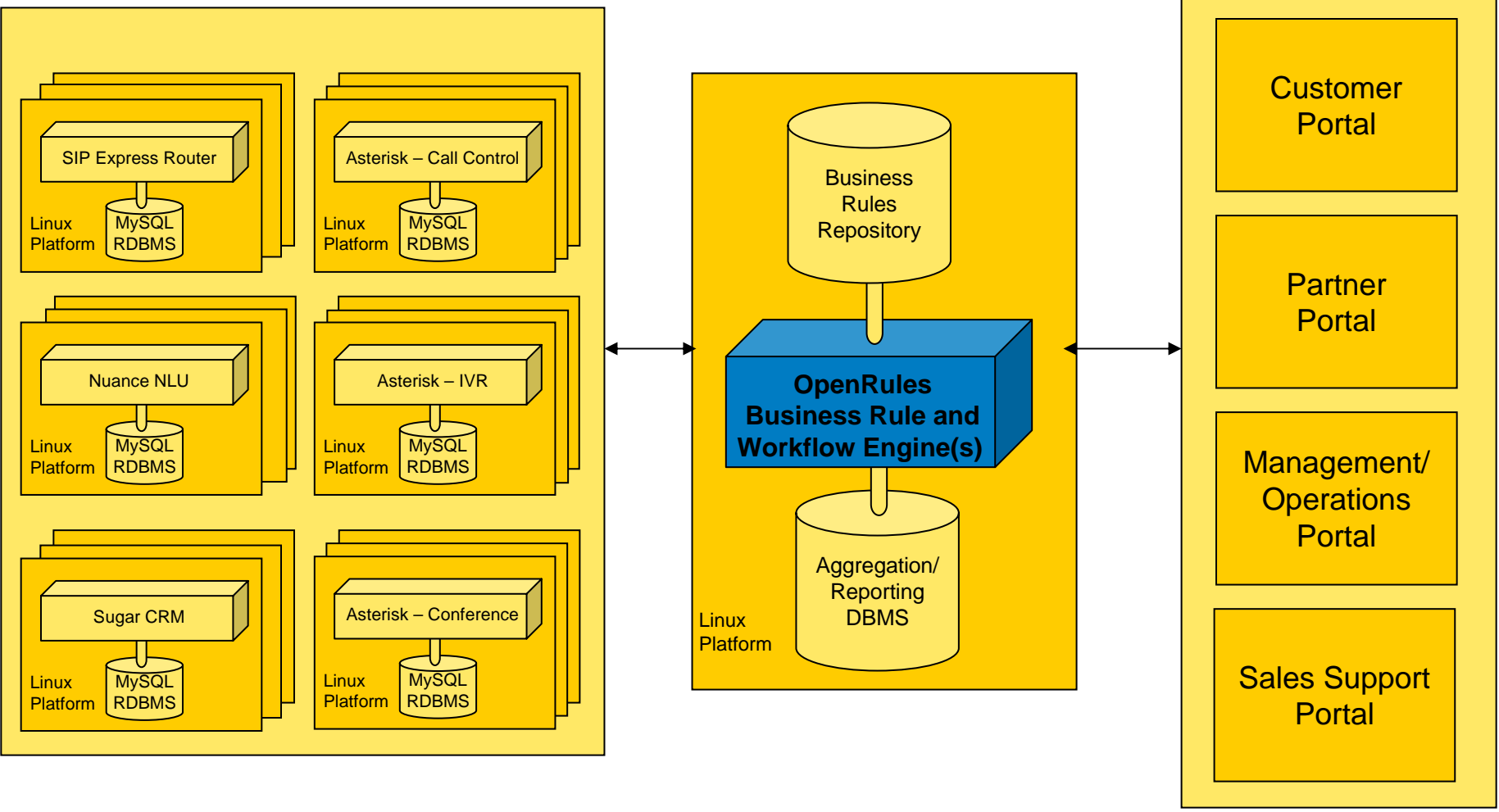
# Rules-based Solution

- Visitor put the BR approach at the heart of its Solution Architecture
- Business rules management system (OpenRules) was used:
  - > As an IDE Component
    - Business Analyst “Rules Discovery”
    - Business Analyst & Developer “Rules Repository”
    - Business Analyst & Developer “Rules-based GUI Builder”
  - > As a general purpose “engine”
    - For configuring complex workflows
    - For rules deployment into the Web Services context
    - For efficient rules execution
  - > As a core feature “engine”
    - As a “Provisioning Rule Engine” to create and manage multiple service configurations in a multi-tenant environment
    - As a “Workflow Engine” to create and manage highly dynamic interaction processes

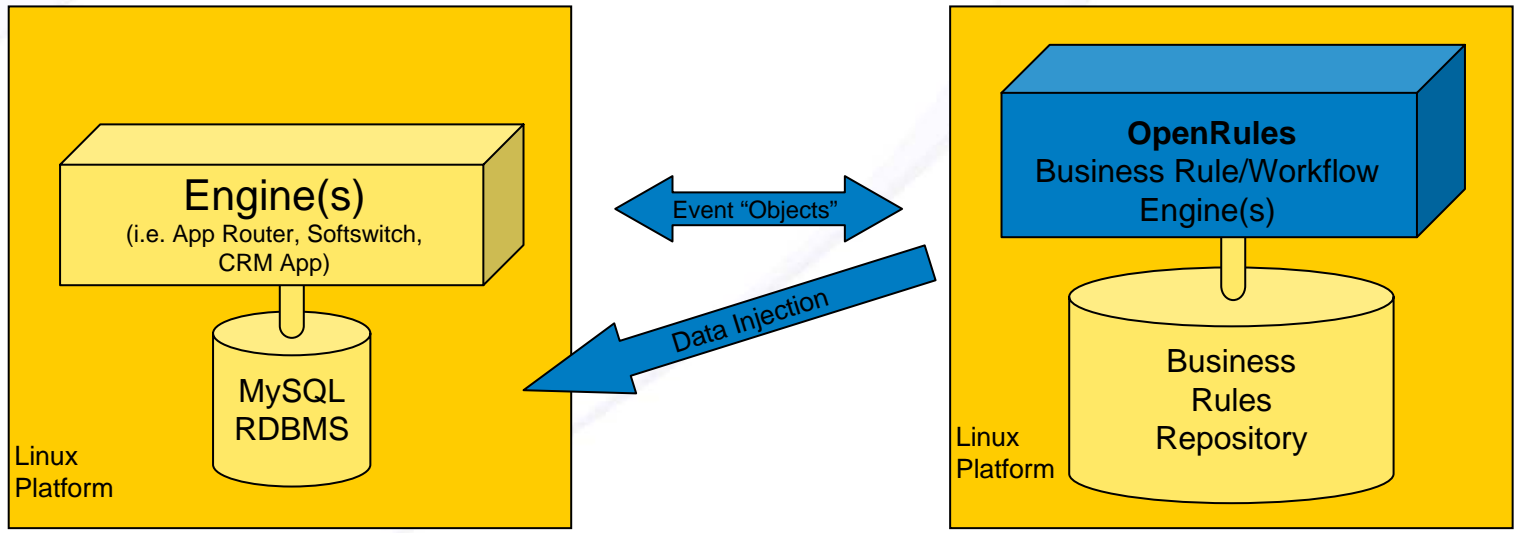
# Why OpenRules?

- Open Source
- Innovative construct
  - > Get the Business Analysts (non-technical) involved in defining the delivery of the application – DIRECTLY using tools they use every day: Excel, OpenOffice, etc. (“Business Logic”)
  - > Rule definition actually renders a “respectable” web services GUI directly (“Presentation Logic”)
  - > Compatible with the developer expertise that already exists for Java and Microsoft products

# Engines Topology




# Data Driven Engine Architectural Construct



# Example

- User Changes Phone Number, Extension, or Active Extension

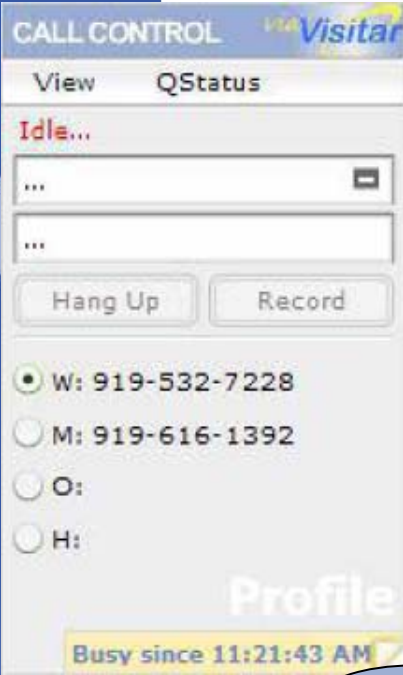
CALL CONTROL 		User Information	
View	Status	Employee Status:	Active
Idle...		Title:	
...		Department:	
...		Reports to:	
<input type="button" value="Hang Up"/> <input type="button" value="Clear"/>		Email:	hbarnes@visitar.com
<input type="radio"/> Office Phone		Other Email:	
<input checked="" type="radio"/> Mobile Phone		IM Type:	AOL
<input type="radio"/> Other Phone		IM Name:	hankbarnes
<input type="radio"/> Home Phone		Address:	
Profile		Notes:	
		Office Phone:	9195327228
		Mobile Phone:	9196161392
		Other:	7034014868
		Fax:	
		Home Phone:	
		Extension:	700
		Active Extension:	phone_mobile

- System updates record in CRM
- Business Rules trigger updates in Soft-Switch (both Automatic Call Distributor & IVR engines)

# Rules-based Configuration Model

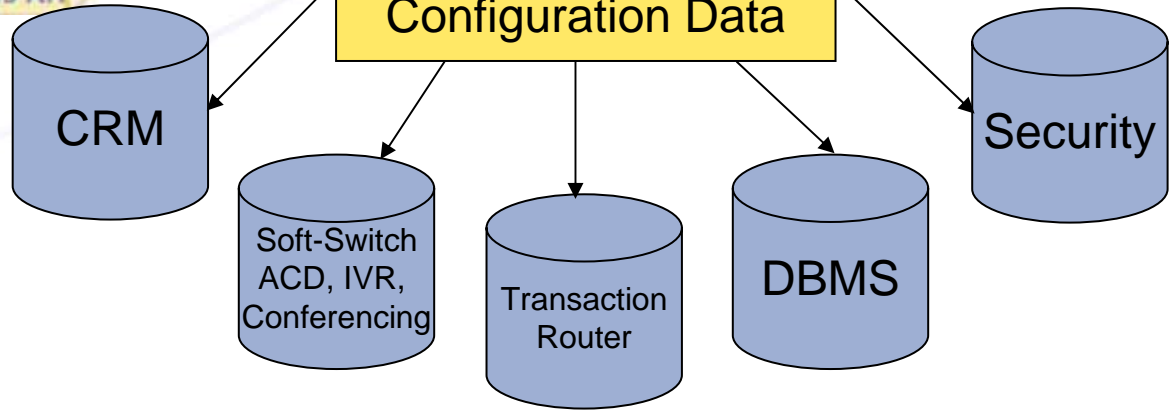
Real Time Call Controller

Rules Driven Configuration



User Completes  
Dynamic Business  
Language  
Questionnaire (s) or  
Updates Data

Business Rules Drive  
Setup/Adjustment of  
Configuration Data



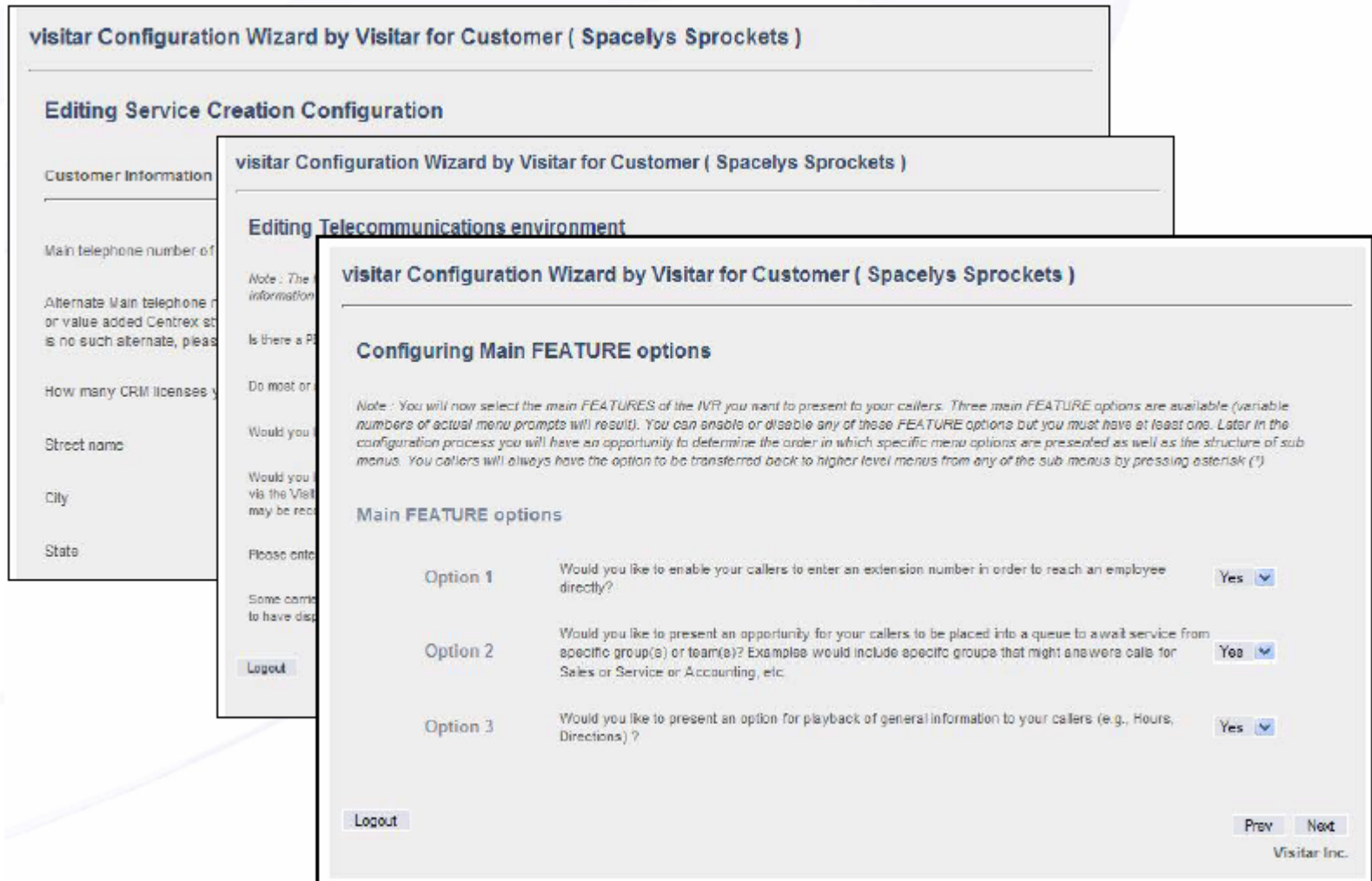
Business Rules Repository

- Test Data
- Business Glossary (Datatype Spreadsheets, XML, Java, DB tables)
- Access Control Processing Logic
- Decision Support Tables (Rule Spreadsheets)
- Style Sheets Interaction Logic
- Web Forms (Layout Spreadsheets)



# Rules-based User Interaction

- Example: Activate Users on Involvement



The image displays three overlapping screenshots of a 'visitor Configuration Wizard by Visitor for Customer ( Spacelys Sprockets )'. The screenshots illustrate the progression of a configuration wizard:

- Top Screenshot: Editing Service Creation Configuration**

Customer Information

Main telephone number of

Alternate Main telephone n or value added Centrex st is no such alternate, pleas

How many CRM licenses y

Street name

City

State
- Middle Screenshot: Editing Telecommunications environment**

Note : The information

Is there a P

Do most or

Would you

Would you via the Visit may be rec

Please ente

Some comm to have disp

Logout
- Bottom Screenshot: Configuring Main FEATURE options**

Note : You will now select the main FEATURES of the IVR you want to present to your callers. Three main FEATURE options are available (variable numbers of actual menu prompts will result). You can enable or disable any of these FEATURE options but you must have at least one. Later in the configuration process you will have an opportunity to determine the order in which specific menu options are presented as well as the structure of sub menus. Your callers will always have the option to be transferred back to higher level menus from any of the sub menus by pressing asterisk (\*)

Main FEATURE options

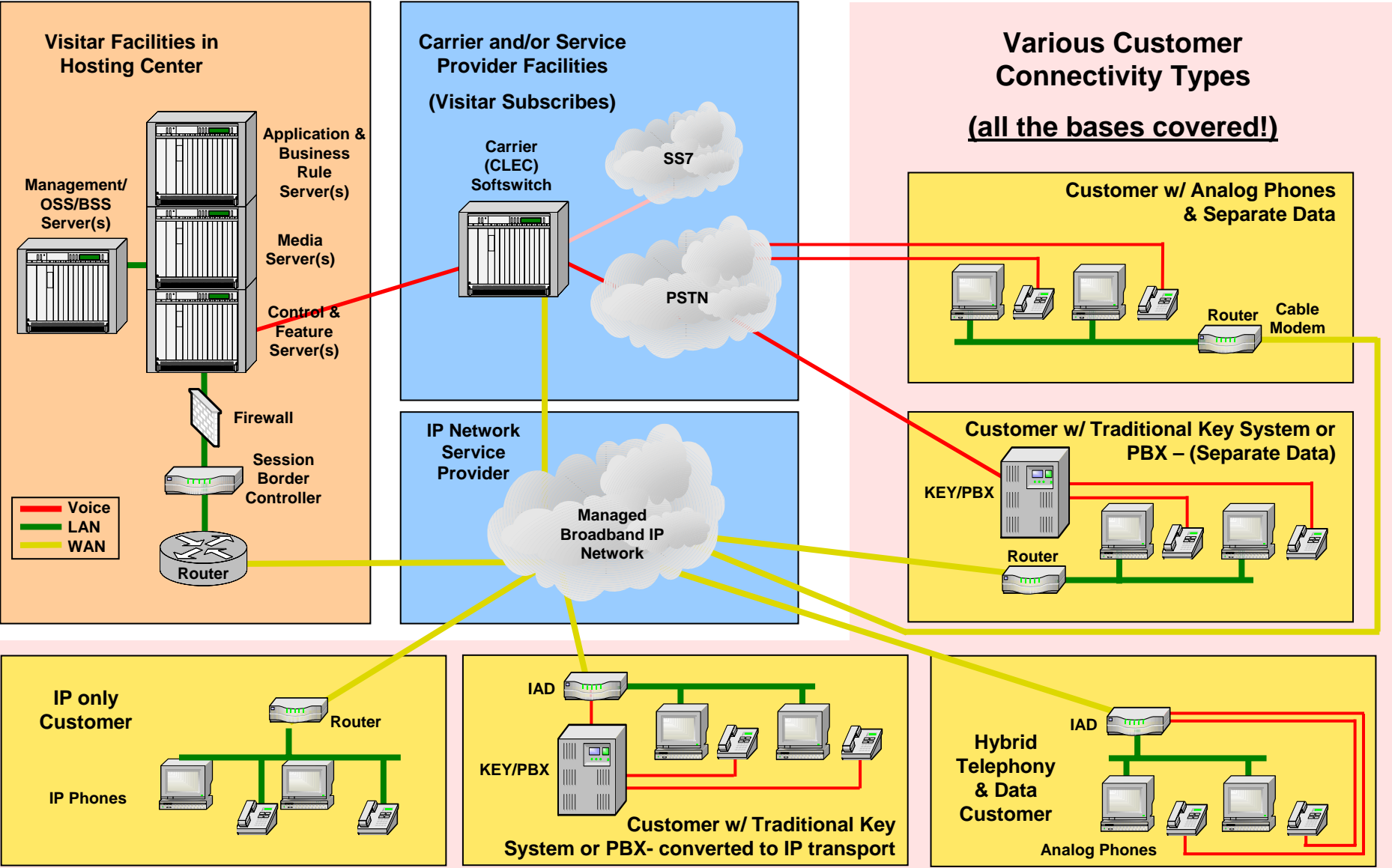
Option 1	Would you like to enable your callers to enter an extension number in order to reach an employee directly?	Yes <input type="button" value="v"/>
Option 2	Would you like to present an opportunity for your callers to be placed into a queue to a wait service from specific group(s) or team(s)? Examples would include specific groups that might answer calls for Sales or Service or Accounting, etc.	Yes <input type="button" value="v"/>
Option 3	Would you like to present an option for playback of general information to your callers (e.g., Hours, Directions) ?	Yes <input type="button" value="v"/>

Logout

Prev Next

Visitor Inc.

# Hosted Communication Applications Topology



# Rules-based User Hierarchy

- Visitar used OpenRules to create a rules-based configuration tool that allows us to:
  - > Manage all partners
  - > Manage all customers
  - > Add new partners or customers
- Partners can:
  - > Create new customers (their own)
  - > Manage their customers
- Customer can:
  - > Manage their own solution (but no others)
- More specific rules always override more generic rules

# Key Benefits

- Visitar customers do not need:
  - > any special phone systems beyond a dial tone
  - > any special software to install beyond a browser
- Configuration through business-oriented rules, rather than technical configuration parameters
  - > Reduced management burden
  - > Initial setup and subsequent adjustments can be made by business people in minutes, rather than weeks
- Architectural solution eliminates complexity and high license fees
  - > Integrated best-of-breed Open Source components for CRM, collaboration, full telephony, and business rules
  - > Ability to add additional applications in a similar fashion
- Summary: high value without high costs

# The Bottom Line

- Started Development with a staff of 5 (including the CTO) in October '05
- Beta Testing with customers in January '06
- Production deployment of release 1.0 in March '06
- Revenue in June '06
- Version 2.0 in final test NOW!
- Development staff now only 10!

# A Few Lessons Learned

- BRMS architectural construct has a steep learning curve
  - > “Why are we doing it this way?”
  - > In spite of what institutions, teachers, mentors, employers have been claiming, developers like bottom-up vs. top-down design.
- Language & culture background of development staff GREATLY influences rule design and presentation logic (grammar) design
- Successful rapid deployments set the bar higher for the IT staff the next time around!



# Thanks

- Questions?
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