

Case Study



Globalizing VoIP PBX for a Networking OEM

Abstract

VoIP, the next big technology wave, is being adopted rapidly by companies in the communications industry. With multiple vendors introducing variations to the VoIP-PBX, it is imperative that companies have product differentiation to achieve global leadership.

Realizing the immense market potential for one of its Fortune 500 (Blue Ribbon Companies) companies, Infosys helped the client, a leading global supplier of networking equipment and a network management solution provider, to develop an International Dial Plan. This International Dial Plan helped the client to scale up their flagship product. An International Dial Plan is an application that generates country-specific dial plans on the packet telephony controller.

This initiative gave the client a first-mover advantage in the international market over both the local and global providers of end-to-end VoIP telephony solutions. The client has filed a patent for this international dial plan idea that was conceived by Infosys.

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Client Overview

Our client is a global leader in networking for the Internet as well as in manufacturing networking hardware and software to build Internet solutions for the enterprise segment. These products are used in the core areas of routing and switching and in advanced technologies such as enterprise networking, IP networking, optical and network security, storage networking and wireless LAN. Our client has a product in the VoIP-PBX domain. A VoIP-PBX is a business-phone system that uses the Internet for exchanging data, voice and video.

Challenges

With the evolution of VoIP technology in emerging market segments, each country has its own set of dialing plan requirements. Our clients' VoIP-PBX product dial plan caters to the dialing and routing needs of the North American numbering plan alone. Several numbering plans had to be designed in order to customize the product to meet the global market needs to suit a country's dialing patterns. However, manually creating dial plan files could result in certain shortcomings as:

- Enormous scope for erroneous routing patterns resulting in the entire routing scheme of the country to fail
- Non-scalable platform to meet the new dialing requirements of the country
- Considerable revenue leakage

The Infosys Solution

Recognizing the need to leverage the global market potential, Infosys proposed to develop a core strategic application called the International Dial Plan. The call processing component needed a redesign and restructuring to permit seamless support for the new dial plans. The proposal for the International Dial Plan application was finalized immediately by the client since it was aligned to the product portfolio's core strategic vision.

The Infosys Approach

Due to the multi-dimensional expertise in the VoIP domain and innovative approach exhibited earlier, the client chose Infosys for the development of the International Dial Plan product. Infosys identified the need to customize the numbering plans to suit each country's dialing patterns and allocated a dedicated R&D team to address the complexities by adopting a product R&D lifecycle approach. The steps in developing this application were:

a) Conceptualization

In the conceptualization stage, the R&D team identified two approaches that were evaluated for time to market:

1. **Approach 1:** As per this design, the user has to create route patterns. The tool will then create an executable from it, which can be deployed on to the system. Since the length of a route pattern can be long, and the number of route patterns in a dial plan can be enormous, it calls for more work from the users and in turn increases the dial plan creation time.
2. **Approach 2:** As per this design, all the possible route patterns are auto-generated by the tool based on user input. The user then needs to select the route patterns that are desirable for his country's dial plan. The tool will then create an executable based on the selected patterns which can be deployed on to the system. This saves time and requires less effort from the users.

Approach 1 was extremely time-intensive as opposed to approach 2. Hence, approach 2 was found to be most appropriate to aid deployment. Based on approach 2, the team created a prototype of the possible solution:

The centralized dial plan deployment server (Figure 1) validates the dial plan data which is passed to a rearchitected call processing soft switch which generates the dial plans based on this data. The dial plan data generated is stored in the database. The COM components were redesigned for the application to interface with the database to pull and push the required data.

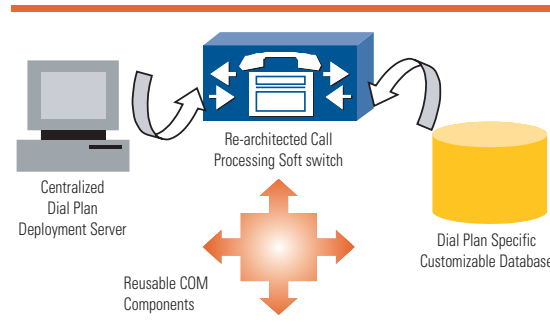


Figure 1: One-Click Installable International Dial Plan Application

b) Design and Implementation

1. **Requirement analysis:** A set of requirements encompassing the platform, database and callprocessing needs were formulated.
2. **Use of repeatable framework:** To provide a faster time to market and first-mover advantage in the VoIP-PBX space, reusable COM components were designed into the complete solution.
3. **Client-server architecture:** A user-friendly administrative web interface was created using a client-server architecture to create and deploy the dial plans in a centralized web server.
4. **Customized dial plan scheme:** A one-click install encompassing the entire solution for the internationalization of the VoIP-PBX platform and customized dial plan scheme was designed and deployed in a centralized customer-web server.

The International Dial Plan application progresses through the following project life cycle stages (Figure 2):

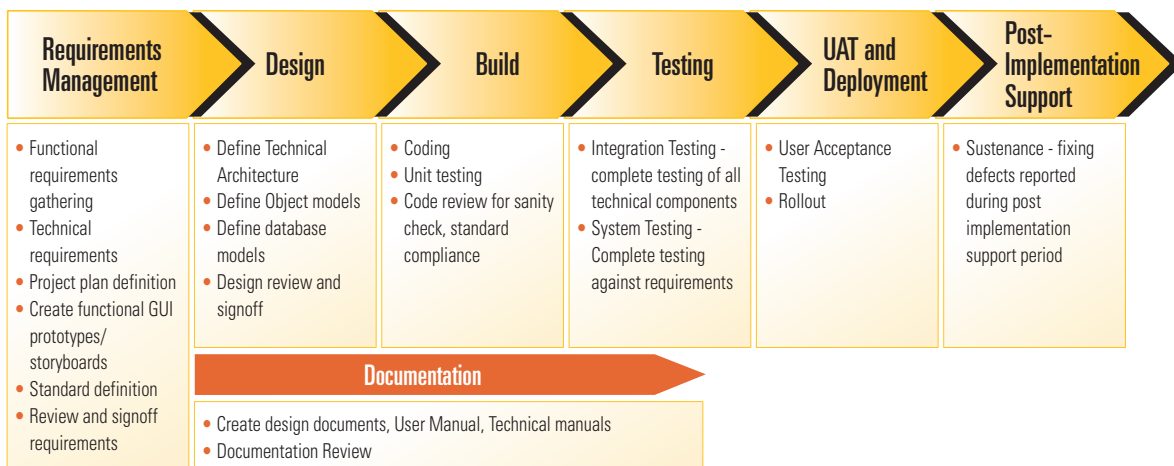


Figure 2: International Dial Plan Application Conceptualization

c) Testing

In the testing phase, defects that were identified through Early Field Trials (EFT) were addressed. The test plans were written to cover all the test scenarios including feature validation and performance. Automation test scripts were developed using Windows ActiveX Component Architecture to facilitate reusability. These scripts were developed to test both deployment and validation of the dial plans on the system, reducing the manual testing time and resources.

d) Final Candidate for Shipment (FCS) and sustenance

After the successful completion of EFT, the solution was packaged as a plug-in with the product released in over 10 countries across the European and Asia Pacific markets.

Benefits

1. The time to market was reduced as the client's market base in other nations wanted to adopt the cutting-edge VoIP technology telephony system.
2. There was a phenomenal growth in the market share of our client's VoIP-PBX product since it achieved the leading position in the emerging market segment.
3. Our client was able to file for a patent for the International Dial Plan that was conceived and designed by Infosys.

For more information, please visit <http://www.infosys.com/services/product-rnd-services/>

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