

Interactive Voice Response by Cloud Computing as a Service

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ABSTRACT -IVR (Interactive Voice Response) applications are capable of automated attendant, bank teller and automated surveys and few of many applications. Nowadays IVR applications are offered in cloud computing via IP Telephony technology (Voice over -IP i.e. VoIP) for worldwide telecommunication market. Compared to TAPI[4], VoIP supports reliable and robust applications for cloud computing and visualization. IVR programming applications control and respond to the calls on the IVR platform. IVR applications prompt callers, gather input information and transfer that information to the callers into other phones. IVR applications uses existing database to retrieve the information during user calls. A secure Cloud IVR[1] web based solution which removes the capacity, time and cost restrictions normally associated with traditional inbound contact Centre technology. Simply customers log onto a interface of web and create their IVR through an intuitive of software interface to drag-and-drop. New objects include sound files and can be attached operative within minutes for call flow alteration. Using this approach, the solution can be set up in less than an hour and can changes any live in seconds. Client present any relevant information and the IVR can link into client databases on the agent desktop. For any call flow, there is no limit to the number of IVRs. To create a new Virtual Contact Centre across cities, continents or regions, cloud IVR can also be used in partnership with existing technology platforms. This businesses means can use Cloud IVR to effectively more manage peaks in call flows and leverage [6] to remote agent skills whilst still leveraging technology platforms existing.

Key Words: Cloud IVR, Virtual, Secure etc...

I. IVR INTRODUCTION

IVR (Interactive Voice Response) is a telephony technology for user defined pre-recorded voice prompts, allows computers to interact with humans through DTMF tones (via Telephone keypad).

Using IVR Technology, users can retrieve information of Bank balances, Flight schedules, Product details, Order status, Movie show times and other information details. Through Database access permissions, user can interact over the telephone, simplifies interaction between businesses and callers. The voice recognition[4] software (IVR System) includes speech analytics; voice prompts, and automated tone recognition.



Fig - 1: Telephony with Keypad Numbers

2. CLOUD INTERACTIVE VOICE RESPONSE

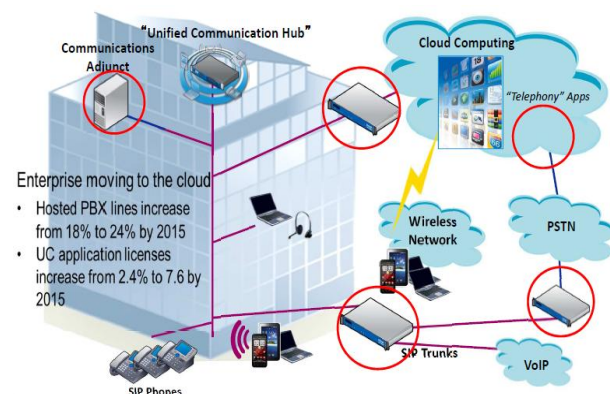


Fig - 2: IVR Cloud Computing

In the form of Software as a Service(SaaS) and Platform as a Service(PaaS), IVR technology intersect with cloud computing for delivering the service oriented software system.

Most of the time, it is pretty simple for everyone to understand, make/receive (pick up) a telephone call, hang up or disconnect the call, play[5] an audio file, transfer the call, conference the call! With Cloud Telephony, these kinds of telephony functions can be added to any computer application!

Cloud Telephony[6] means, you do not have to deal with telephony, knowledge of how telephone works as long as you know what you want your telephone to do!

2.1 Cloud Telephony offers many advantages

Cloud Telephony offers many advantages, comparing to traditional on-premise telephony applications.

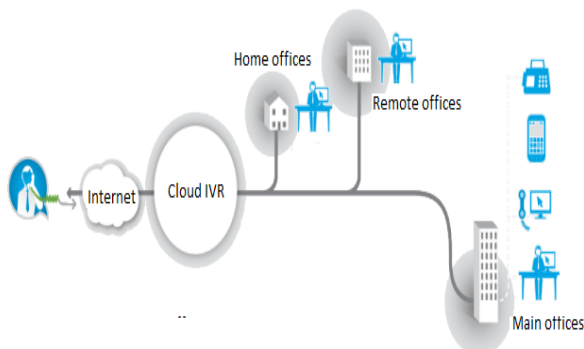


Fig - 3: Cloud IVR is a technology that allows a computer to detect voice and DTMF tones input via keypad.

Traditional on premise telephony applications are typically consisted of IVR and PBX[2] and lot of wires through MDF (Main Distribution Frame)! IVR application is the application which provides software like function and computational capabilities! Could IVR, pick up an incoming call, play a greeting, and ask to dial extension number, transfer to the call, if the transferred number did not pick up the call, asks the caller to record voice mail!

Few hundred lines of coding is enough to provide above functions are in cloud telephony and can just subscribe to Cloud Telephony service provider with monthly subscription fee, or actual usage basis, use their API in his own applications! With standardization of VXML, a user can become truly independent of cloud telephony vendor or hosted IVR provider!

2.2 Following are a few causes for IVR Cloud:

1.Simplified Platforms – The cloud combines all the layers of the IVR into single and robust platform.

2. Better-Suited Application Development – To develop IVR Applications, phases of development and deploy process skills are required as well as th depth analysis and, testing skills are required.

3. Centralized Support – IVR cloud systems are optimal for includes upgrades of all stripes software, hardware & OS.

4. Rapid Deployment – For large scale cloud based platform needs to develop short term basis for special announcements, short run campaign, surveys etc.

5. Flexibility – The demand for IVR service exceeds previous expectations. While this is a good thing, there needs to be a flexible[1] IVR platform set in place to match this need – a platform that can both meet communication needs, and expand as needed in the cloud.

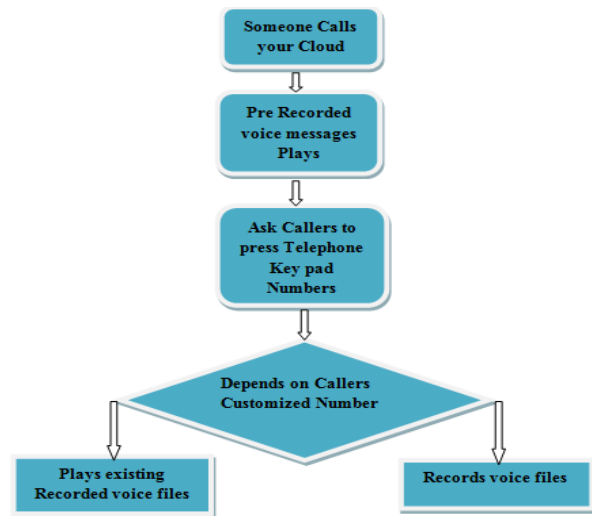


Fig - 4: Cloud IVR Flow

2.3 Cloud IVR benefits

- Catch every single call and pass to the right person.
- Use automatic promotion announcement with IVR.
- Send the calls to Voicemail and receive by Email at your business trip.
- Supports true natural language speech, in addition to directed dialog and DTMF input
- Supports multiple languages for global business needs.
- Provides a high-capacity platform that can handle the largest call spikes.
- Delivers high-availability[5] with 24x7 monitoring to ensure business continuity.
- Allows users to assess each channel to understand its effectiveness for the customers who prefer it.
- Reduces custom reporting.

3. CONCLUSION

Providing IVR services globally, cloud computing is a feasible strategy. In underdeveloped countries, IVR self-care support may improve self-care and glycemic control for patients. IVRs allow users to remotely access IVR applications as services in several commercial hosted. However, to the best of our knowledge these applications do not rely on virtualized[3] infrastructures.

REFERENCES

- [1][Davidson] Davidson Consulting, Computer-Based Fax Markets, 2006-2011, December 2007.
- [2]Dialogic® IMG 1010 Integrated Media Gateway - http://www.dialogic.com/products/gateways/img_gateways/default.htm
- [3]Dialogic® Brook trout® TR1034 Fax Board - http://www.dialogic.com/products/tdm_boards/fax_boards/TR1034.htm
- [4]Dialogic® Brook trout® SR140 Fax Software - http://www.dialogic.com/products/ip_enabled/FoIP/S_140.htm
- [5]Interactive Voice Visual Tracking of Construction As Built Information - By Mohamed Abdelrehim.

BIOGRAPHIES



ARABOLU CHANDRA SEKHAR was born in Nandyal town, India, in 1973. He received the M.Sc. degree in Information Technology (IT) from the Kuvempu University, Shimoga, India in 2008, MBA degree in Marketing from Alagappa University, Karaikudi, India in 2008 and M.Sc. degree in Psychology from Karnataka State Open University, Chennai, India in 2013. Now he is pursuing PhD Degree in Computer Science (Cloud Computing) from the Bharathiar University, Coimbatore, India.

He is having total 15 + years of experience in Software Development in Telecom and Application Development domain for Microsoft Technologies. Presently working in Tech Mahindra Ltd, Bangalore as Technical Architect. He worked on IVR (Dialogic API) technologies, VOIP, Mobile technologies and Image Processing Tools. He is expertise and having good experience in C, C++, VC++ and COM, C#.Net, ASP.Net, WCF, WPF, Silverlight, AJAX, jQuery, Cloud Computing Technologies such as MS Azure, Amazon Web Services, and Hadoop for Big Data, as well as expertise in OOAD, Design Patterns and UML with Rational Rose.

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Rachapudi Praveen Sam was born in Kurnool City in 1975. He received the B.Tech degree in Computer Science and Engineering with First Class in 1999 from Sri Krishna Devaraya University, Ananthapur, A.P., India; M.Tech degree Computer Science and Engineering with First Class in 2001 from Madras University, Chennai, T.N., India and was awarded Ph.D. degree in Computer Science and Engineering in 2010 from JNTU University, Ananthapur, A.P., India. His Ph.D. specialization is mobile and Ad Hoc Networks(MANETS). He expertise in Computer Networks and Network Security.

He is having 13 years of teaching experience, presently he is working as a professor of Computer Science and Engineering department for G.Pulla Reddy Engineering College (Autonomous), Kurnool City, India. He has a total of 25 publications out of which 13 papers in International and National Journals and 12 papers in National and International Conferences. He is a member of various professional bodies like ISTE, IE, CSI, IAENG, CSTA, and IACSIT.

He received Minor Research Project titled "Developing Disaster Management Applications using Mobile Ad Hoc Network Tested" sanctioned by UGC for a period of 2 years in March 2014.