The Death of PBX

by Invitation

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Going back a few decades, the setting up of an organisation starts with the PBX- and LAN-Cabling, along with other interior setup activities. Further, each desk would have a phone which is connected to the central PBX and the PBX connected to the outside world with Analog or Digital trunks. With increasing adoption of VoIP, the PBX-Cable started disappearing, and the same LAN cable was used for Voice transport. Further adoption of mobile phones, resulted in PBX completely vanishing from smaller companies, and the usage of PBX drastically getting reduced in larger corporations. Is the PBX dying or already dead?

Yes. The PBX is dead. The PBX for internal communication is dead. The PBX usage to reach customers is dead. The PBX as just means of communication is dead.

Not really true. PBX is actually going through a transformatory disruptive evolution and emerging as an even more important center piece of future corporations, with two core functionalities:

● **Enterprise Connectivity:** Today's enterprises comprises of lot of Islands – Island of Intercom, Island of emails, Island of SMSes, Island of Crm and other data applications, Island of Surveillance, and so on. Intelligent applications can be created only by allowing these islands to converge and for this we need a common platform. The PBX is getting transformed to a PDX – Private Device eXchange.

● **Enterprise Efficiency:** The linking of the Islands in an organisation results in a Big Data environment, which sud-denly opens up innumerable possibilites of managing the organisation efficiently. For e.g. Call Centers are more and more becoming the face and pulse of any organisation. Brands are created and killed by words coming out of the employees in these call centers. Combined with analytics and techniques like ML, AI etc, in Big Data environment, the PDX helps enterprises control their external communication, identifying critical situations and thereby keeps the workforce under control.

In the coming sections, we'll explore both the above core functionalities in detail.

PBX to PDX

Intelligence and Convergence in everything – smart phones, smart switches, smart watches – that is today's Mantra. How does this happen? When devices sense the environment, take information from the sorroundings and react or adapt to the changing situations, or raise alarms in critical situations, we call those devices to be smart.

How can the devices do it? Devices primarily needs connectivity to it's sorrounding to sense things. So, there are devices, which can absorb information from the sorroundings like Sensors, Cameras, and even Phones. The absorbed information has to be transported to a processing center. Based on the analysis in the processing center, actions can be initiated. These actions could be in turn alarms to individuals, calls, relay motions etc. A platform for seamless integration of all three components like readers, processors, and actors is required for all

of it to happen. The IP PBX or the transformed PDX can act as this platform. In an Enterprise environment, the PDX serves as one device which provides this connectivity. To elaborate on this, we will take up two three practical scenarios, how this connectivity happens.

Surveillance Alarms over Phone on Activity Detection

In a PDX environment, the surveillance cameras are connected to the PDX over IP. The surveillance processor takes the feeds and records it for future monitoring. An activity detection processor can be parallely engaged to process the feeds to detect any activity in the scenes. The case might be monitoring the premises, when no employees are present.

Call Center Voice Processing

With the advent of increased online activites companies are more and more seeking help of call centers to be the face of the organisation. The practice of going to the bank and carrying out daily transactions over the counter is becoming history. Today, we resort more to online transactions, and in case of complex issues, we call into the call center. So, the importance of grooming the call center agents to represent the brand as well as the monitoring is very crtical. Manual monitoring of the agents can be achieved by sort of peer monitoring, which will result in doubling the human resources required. Many of the established call centers resort to sampling, which still results in an additional 30-40% workforce. Fortunately, parallel advance in technologies like

If the activity detection processor detects any activity, it can send an SMS, or email and also make calls to Mobile or Landline and play pre-recorded messages, depending on the premises, where activity was detected. An enormous cost-saving in terms of humans deployed to achieve the same results can be achieved. These methods may also be installed in locations, where the environment is hazardous for humans.

Artificial Intelligence, Machine Learning, Natural Language Processing comes to our help. Integrating these technologies into a PDX environment creates intelligent systems to overcome the earlier mentioned difficulties.

The conversations of agents are recorded and processed. The processing can include identification of multiple elements like Greetings, Regulatory Announcements, Bad Words, Pleas-

ing words and so on. Based on the analysis, the recordings are marked for further processing by humans. Further, based on manual analysis, decisions like more training or shifting to another department can evolve. This form of processing reduces the number of QC team required by at least 50%.

Profiling with Big Data: In the above scenario, we can take it one more step further to profile the agents based on Big Data Processing. The information obtained by the voice file processing can be expanded by multitude of further information like

- **Call Information:** Duration, Date, Time, Disposition,

- **HR information of agent:** Age, Demographics, Education, Experience, and

- **Customer Profile from CRM:** Age, Demographics, Education, Payment History.

The possibilites such a big data analysis are immense and PDX creates a nice platform to bring together all the information.

Garage Opener from Mobile Phone

A company with 500 employees have a remote controlled Garage Door Opener. The issue they are facing is that they need to provide either 500 remotes, or 500 Id cards and maintain it in situations like forgot to bring the card, lost the card and so on. The solution to this is very simple in a PDX environment.

All employees carry a mobile phone. Employees can come to the door and make a call to a particular number. The number can be verified and if the required authorisation is available the

Based on all the above information, Clustering operations can be carried out to identifying interesting patterns. Once interesting patterns are identified, it can be used for future design of processes. Examples of such patterns are:

- **Pattern:** Customer purchases are more, when the agent and customer are of the same age group.

Design of Process: Identify the customer from the calling

IoT switch can be activated from the PDX device, which in turn opens the door. The same concept can be deployed from floor doors, conference rooms, AC etc.

The possibilites opened up in a PDX environment are innumerable. The limits are set only by our imagination power. The recommendation to the IT Managers in Organisations is to study the IP PBX environment and

number, Pickup his age from the CRM database, and route the calls to an agent with similar age group.

- **Pattern:** Young graduates purchase more, when the calls are between 7 PM and 8 PM. It is possible that young graduates are all employed and therefore during the day, they'll engaged in their workplace.

Design of Process: Calls to graduates should be times between 7 PM and 8 PM.

it's transformation to the PDX environment. Once the fundamental principles are understood, multiple tools are available to materialise your imaginations. Also, do not forget to study the large amount of Open Source Tools available, be it AsteriskTM, Hadoop, Python Speech Recoginition. It is surely fun to design new tools for efficient collaboration of enterprise Islands to improve the overall efficiency of the Organisation. 🔥