Case Study-Migrating from Cisco Call Manager to Asterisk PBX

A Major UK brand experience specialist contacted TBS for implementation of Open Source PBX system.

They had decided upon an open source PBX solution was because of major cost difference involved in the hardware procurement and overall yearly maintenance cost.

The client is the retail, promotional and brand experience specialist in United Kingdom.

They contacted TBS for implementation of Open Source PBX system.

TBS had previously assisted this client in other Open Source development projects and therefore they consulted us to provide some open source solution for the proprietary communication system they were using.

The objective was to reduce the overall cost of their PBX.

Cost was the motivation to move to Open Source

Before initiating the project the client was paying to license a proprietary communication system: CISCO Unified Communications 560 for Small Business.

This communication system had been in place for quite some time and the management and the IT team were well aware about the hefty cost involved in any upgrade to the proprietary system.

TBS has been using Asterisk for last 10 years and has a very sound understanding on overall working of Asterisk based PBX.

Asterisk is a free and open source framework for building communications applications and is sponsored by Digium.

Asterisk turns an ordinary computer into a communications server. Asterisk powers IP PBX systems, VoIP gateways, conference servers and is used by small businesses, large businesses, call center, carriers and governments worldwide.

TBS has years of experience in Asterisk Installation, Maintenance and Support

TBS has been using Asterisk and providing support for other Asterisk based systems since its initial version launch which is Asterisk 1.2.

Proprietary Communications Systems Disadvantages

• **Expensive –** Proprietary Communication systems like Cisco UC560 can cost around 3000 to 4000 US dollars depending upon numbers of user licenses. For a small business or start-up, spending huge amount for just communication system is challenging in its inefficiency.

• **Scalability –** Cisco UC500 series comes in different models depending upon the maximum numbers of users it can support. The consequence is that as a business grows, if the total number of users increases, then you will pay extra for additional user licenses.

• **Support –** Technical Support for these systems is for limited period and clients may have to pay extra cost for yearly maintenance and support.

• **Customization –** User customization is often restricted in proprietary systems.

• **Rapid Dial-plan deployment and development –** Implementing a custom dial plan is not usually possible in proprietary systems.

• **Unified Messaging –** Integrations of other applications is not always possible with Cisco US 500 series, restricting a businesses ability to roll-out integrated communication and messaging across their organization.

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Advantages of Asterisk over Proprietary Communication Systems

• **Extreme Cost Reduction –** Combined with low-cost telephony hardware, Asterisk was used by our client to create a PBX at a fraction of the price of traditional PBX and key systems, while providing a level of functionality exceeding that of many of the most expensive systems available.

• **Control –** Asterisk allowed the client to take control of their phone system. Once a call is in a Linux® box with Asterisk, they have a range of options available to them in terms of how to treat it.

• **Dynamic Content Deployment –** In the same way that web servers like Apache allow a user to deploy dynamic content, such as account information, movie show times, etc, on the web, Asterisk permitted the client to deploy such dynamic content over the telephone, with the same ease as CGI.

• **Extremely Flexible Dialplan –** Asterisk's unusually flexible dialplan allowed the client to deliver seamless integration of IVR and PBX functionality.

• **Lower operational costs over time –** In addition to taking advantage of lower cost VoIP routing, by purchasing their own IP-PBX lowered the client's projected costs over time. Any business owned IP-PBX will usually result in lower averaged monthly operating costs especially for systems with a higher number of users.

• **Easier to configure and install than proprietary phone systems –** Proprietary phone systems can be cumbersome and navigation around their software to configure and install can prove difficult. Our client found Asterisk easier to install and configure than CISCO.

Migration Process

Information Gathering – TBS aligned an Asterisk engineer with the client's IT team to gather the information required in order to assess migration. This information gathering included

information related to :
• Current model of PBX in use.
• Total number of phones in use.
• Different phone models and services they are using.
• Voice mail configurations.
• Extension Configurations.
• Queues configuration.
• Inbound and outbound route configuration.
• Feature codes configuration and usage.
• Downtime required to do configuration and switch to line to PBX.

Information Analysis – In this process the information gathered above was analysed to check any incompatibility issues: any features that could not be implemented in Asterisk.

Though Asterisk includes all features provided by the client's current proprietary system, TBS analysed the information in order to make sure that migration was smooth. Client was consequently given advance notification of any issues.

Report Generation – After all information was analysed a final report was created with all the data that required for the migration to the new system. This report also included data that might need some modification before migration.

Hardware Procurement – TBS recommended server hardware specifications and the telephony card to be used for building the PBX server. This client took the option to purchase the hardware directly.

Machine Installation – The TBS engineer performed the installation of the operating system and other packages required prior to installing Asterisk.

Asterisk Installation and Configuration – The TBS engineer installed and configured Asterisk and setup user accounts based on their role.

Asterisk Data Configuration – Based on the report created above, the TBS engineer performed extension configuration, queue configuration, and inbound and outbound route setup.

Install and configure phone provisioning server – A centralized phone provisioning server was setup in the same network providing zero touch phone configuration. As a result the IT team members do not have to go to the phone system in order to configure phones.

Phones are now configured from the centralized server and any changes in the phone configuration file automatically reflects on phones in the seconds.

Install and Configure Firewall – Security is important with all networked systems. Like other servers VOIP servers can be prone to attacks. Common VoIP attacks, where attackers can initiate anonymous calls from the server, can be blocked using firewalling. Specific measures and firewall configuration were put in place by TBS in order to prevent eavesdropping phone calls.

Switching to new PBX – Once the configuration and setup of the phone provisioning server was complete, TBS staged the switch over to the new PBX. A single phone was configured and used to test that the system was performing as per expectations. At this stage, final specific changes in the Asterisk configuration to match client requirements were done.

Testing – Several tests are done to check extensions and queues configuration. Following the single-phone checks, user acceptance tests were performed by the client. Their feedback was used to formulate secondary tests by the TBS engineer to analyse reported voice drop issues while using the new PBX server. Specific changes were performed as required to finalise UAT sign off. Only once user acceptance testing was complete did TBS initiate the downtime necessary to make required changes to network and finalise the switch over to the Asterisk server.

Achieved Business Goals

- Reduced total ownership cost
- Updated System
- Completely Open Source Solution
- No need to buy new hardware to upgrade to the latest version
- No need to pay extra licensing fees to increase user accounts on system
- No need to pay extra dollars for security patches
- Can integrate other open source applications with Asterisk

- Can alter dial plan as per business requirements
- Business specific CDR reports can now be generated

WHO WE ARE

Established in 2004 by the Directors of Technology Blueprint Ltd. - a UK-based software services and infrastructure consultancy company - Techblue Software PVT Ltd (TBS) has a proven track record for delivering quality, innovative and intuitive software, consultancy and support to companies operating throughout the UK, the USA, Europe, the Middle-East, and India. Operating from our premises opposite Cyber City, Gurgaon, India, we specialize in open source technologies, Linux, MySQL, Java, Asterisk/VOIP, Cordova, Liferay, eCommerce and web development. We deliver significant value to our customers by providing cutting edge technology solutions, project management expertise, analysis of projects at business & commercial level and above all a strong code of ethics & an unwavering commitment towards customer excellence.