



Unified Communications – Communication Enabled Business Process (CEBP)

It is time to say that the concept of Unified Communications has been sold to enterprises. Well....almost. Apart from the benefits that accrue out of user level productivity improvements and organization wide collaboration benefits, it is also time to look at how organizational business processes and workflow applications can benefit from the investment on the UC infrastructure. This white paper introduces the concept of Communication enabled business process (CEBP) and goes on to describe how business process can integrate with communication infrastructure. This paper also takes up an example of a particular vertical benefiting from CEBP



WHITE PAPER

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WHAT IS CEBP ?

Communication Enabled Business Process – CEBP as it is called, refers to a technology by virtue of which the organizational business process is integrated with the communication infrastructure in the enterprise, in order to address the need for agile execution of business process, by minimizing the negative effects of human latency. Some of the examples through which benefits can be had are mentioned below.

- A new employee to an enterprise can be taken through a portal, which integrates with the backend systems updating data/records as he/she moves through the process. The system can alert responsible personnel for approvals and actions on their device and mode of presence.
- Notifications can be sent from ERP systems to personnel concerned in a retail environment alerting about certain conditions like stock update, sales blitz, customer visits etc...
- A patient care portal that aids the complete care needs of a patient by embedding communication elements into the process tying up the healthcare payer, provider, coordinator and the patient himself.

EVOLUTION OF UC INTO CEBP

UC is understood to address 2 levels of benefits – one at a user level and the other at a business process level. The network convergence involves integration of data and voice infrastructures in the enterprises resulting in cost benefits. At the communication convergence level, there are interesting converged scenarios resulting in technologies such as presence, enhancing productivity through “first time reach” realities. Collaboration tools benefit workgroup functioning and bring in corresponding benefits due to remote works being able to address a common goal. At the zenith of UC maturity we have the CEBP itself bringing in benefits at a business process level.



Figure 1 : UC Adoption Model

BENEFITS OF CEBP

The enterprises can realize the following vertical specific benefits by deploying CEBP.

- **Retail** – With the integration of the backend IT infrastructure constituting ERP systems and databases, with the communication gear, the following benefits can be derived
 - Customer Experience: Access product information within store and talk to experts available, make a purchase or get directed to an adjacent store.
 - Information Availability : effective Peer to peer communication and regional office to branch office communication
 - Operational Efficiency : effective shelf stock management, to keep track of perpetual inventory and provide corresponding information to the customer.
- **Healthcare** – The following benefits accrue – when Communications are blended with IT infrastructure running business specific applications
 - Patient Care Systems – The patient can get around the hassles of multiple channels of communications with Payer, Provider and the Coordinator by implementing CEBP integrating patient care systems, Payer, Provider and Coordinator systems
 - Doctor Daily Tracker – A portal solution that integrates with the backend databases and patient record systems and the UC infrastructure allows a doctor to have a one consolidated dashboard view allowing him to do routine tasks, and patient scenario specific tasks using the convenience of a single page dashboard.

- Hospital Admission/Discharge systems – Hospital discharge / admission system process when integrated with UC would result in speedy discharge and admission of patients leading to savings attributed to, otherwise under utilized resources besides having a more satisfied customer.
- **BFSI** – This vertical is more consumer focused in terms of interactions and more automation friendly. UC integration with backend systems in Banking, Securities and Insurance result in a satisfied customer and cost savings.
 - Shares Update - A customer can register for stock price limit triggers and get connected with an analyst for expert advice before executing the buy or sale of stocks.
 - Accident Insurance Claim – CEBP helps the customer to get in touch immediately with the agent who is equipped to serve him best, after availing the services of a self service option.
 - ATM transaction failure – A customer who has just realized that he can't draw funds due to lack of available balance would be automatically contacted by the UC service seeking assistance which increases the customer loyalty and experience.
- **E&U** – Billing and collecting field agents of utility services can get instant updates and clarifications from central office. Service personnel can be updated with upcoming call service requests automatically
 - Utility Repair Service – A breakdown in electrical supply utility can result in a call to a field service engineer in the vicinity and be fed with all information with respect to the trouble ticket. Any consultancy that the field engineer needs can be supported by virtue of a presence supported expert tracking system which results in quick problem resolution and effective personnel productivity.

KEY CHALLENGES FOR CEBP

Some of the key challenges for CEBP are listed and explained below.

- *Lack of vision* – There is a lack of understanding of what CEBP is and how it can benefit enterprises. Enterprises are concerned that adoption of CEBP may entail huge costs. Enterprises tend to leave the business process alone and work out some additional tasks manually which aids

the business process. They currently are lacking in awareness to develop a vision on how the communication infrastructure can be effectively used by blending it with business process.

- *Technological challenges* – Enterprises understand that there is a need to adopt new technologies like SOA enablement in order to move to CEBP based infrastructure. The time and cost associated with rolling out such an integration environment is an impediment to quick decision making in enterprises.
- *Rate of technology changes* – Enterprises used to silo'ed applications are challenged with the need to adopt SOA technologies. The communication infrastructure integration comes with rolling out of technologies like Presence, 3PCC, SIP and mobility. Keeping pace in adhering to changing technologies is also seen as a challenge.
- *Ability to develop a business case* - Enterprises consider it a challenge to come up with a business case with clarity for adopting CEBP. They feel that measuring the benefits of CEBP is a challenge.
- *Behavioral challenges* – Enterprises feel that integrating business process with communication will need a cultural change on the part of employees to be able to adopt to new interfaces for handling business tasks.

BEST PRACTICES

In order to resolve the confusion arising out of the onslaught of multiple technologies and coming together of business process and communication capabilities, the industry has some best practices to rely upon.

- (a) **Identification of candidate business process** – Due diligence by a team of domain experts is mandatory in order to choose business process that lend themselves to CEBP. After due consideration of factors such as criticality, usability, potential for business benefit etc., business process candidates should be chosen. A phased approach to roll out is prudent since the technology impact on users is relatively high.
- (b) **Adoption of standard communication methods** – Converged networks (common IP network for both voice and data) is an industry mandate for CEBP roll out, though there are a few instances of these being done on legacy TDM infrastructure. Adoption of standards such as SIP, Web services / SOA, JTAPI help in ease of interoperability and choice of vendors.

- (c) **User triggered versus Business triggered** : User triggered CEBP involves actions from users which in turn result in certain updations / actions in the business systems , like say updation of a particular database. Business triggered on the other hand results in certain communication related actions that get triggered due to an event or alert generated from business applications. It is prudent to first implement user triggered process before venturing into business application triggered process – even though it is accepted that the business triggered process integration would fetch better benefits.
- (d) **A way of measurement** – CEBP constitutes 2 totally diverse domains such as Business applications and Communications. They have different entities as part of measurement such as number of calls, IM messages in the case of communications and revenue per individual in the case of Business applications. A way of arriving at metrics that measure the efficiencies in both of these is critical to the acceptance of CEBP as a technology of adoption.
- (e) **Pilot Exercise** – As it is always , to do with new technologies affecting end users, this is a key step to implement. The right set of users or department needs to be chosen to try out after working out all factors concerning technology, process and people. Education of the users is also critical since the feedback from the pilot phase can be a key aspect in moving ahead.
- (f) **Feedback and improvements** – Since the technology is new – all factors of usability and applicability may not have been worked out ahead of time. User feedback – such as say in the case of field personnel who are part of a CRM based work flow – need to be taken, evaluated and implemented.

HOW DOES CEBP WORK ?

In order to drive home the concept of CEBP, the following section explains the different components that go into realizing a CEBP solution. In a later section , the CEBP concept is explained taking a workflow example related to a retail scenario.

Historically CEBP has existed as part of the contact center infrastructure and workflows. This was mainly used for integrating CRM's with contact center control system in order to pop up screen information on agents systems ahead of him/her answering customer call. The method followed has been :

- **Hard Coding** - wherein specific functions are integrated on both the communication and business applications through proprietary means just to serve the current purpose of service to be rendered without keeping maintainability/scalability in view.
- **Application Programming Interfaces** : Published programming interfaces offer the code that is necessary to blend two disparate systems by allowing them to use each others capabilities.

Knowledge of programs residing in both systems is necessary to be able to effectively use the API's.

- Adapter : Out of the box systems by several vendors allow for systems to be integrated relying on the capability of the adapter system to handle bidirectional messages and data.
- Web Services : web services refers to software components that employ internet standards to exploit capabilities exposed by different web applications in the internet. Communication in the web services paradigm adopts the xml format.

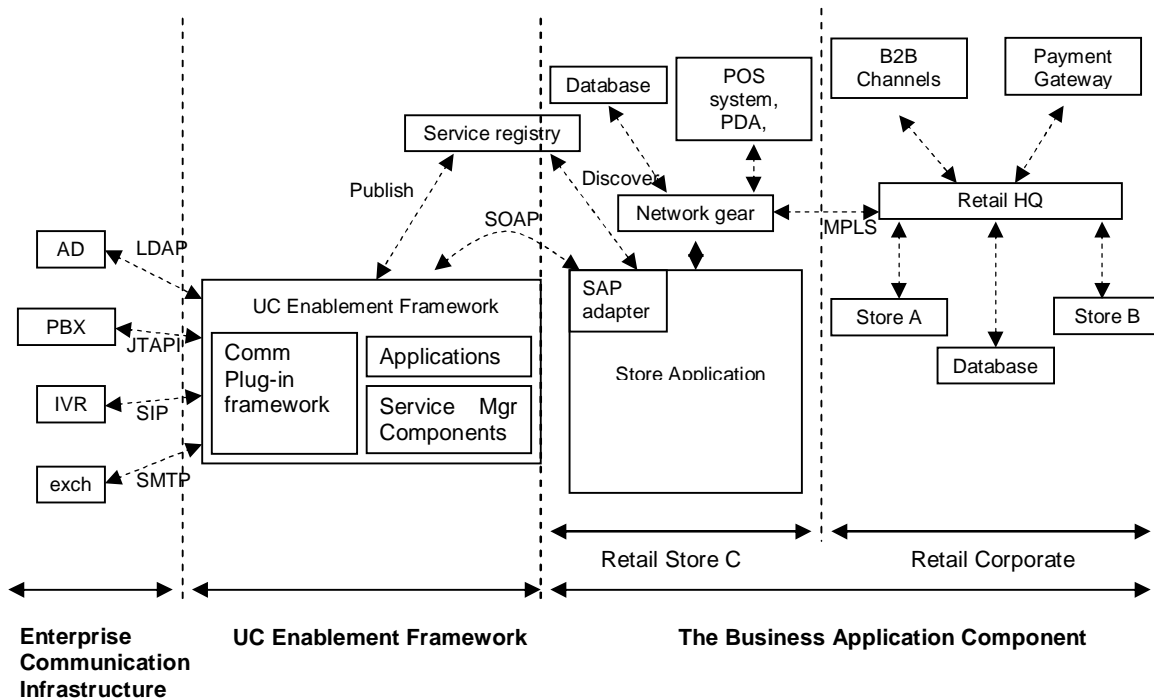


Figure 2 : CEBP scenario – Retail Example

The overall CEBP solution typically consists of the following 3 components:

The Business Application Component

The business Process application is implemented on popular enterprise application servers suites like SAP, Oracle, Peoplesoft, Sage, Siebel etc... In the scenario in Figure 2 above, the SAP is assumed as the business application platform to be used by Retail. Any vertical Specific application (for ex Retail) is built using the SAP xApp method and run on SAP Netweaver application server. An adapter Client component is also implemented more often as a joint development between SAP and the middleware vendor implementing UC framework. The Alert System receives the alerts from Business applications and is able

to invoke web services exposed and registered by the UC enablement framework to alert specific personnel terminated in the communication infrastructure.

The Unified Communication Enablement Framework

The UC enablement framework can be a standards based service framework that enables integration of communications service with Business applications. This component abstracts the communication capabilities and exposes the services thereof through web services or any of the methods listed above. Some of the vendors provide a service creation environment which enables rapid creation of XML definitions of actions/displays that need to be undertaken by underlying communication infrastructure.

The enterprise communication applications

This is comprised of software and hardware components encompassing the overall unified Communications infrastructure – Email, IM, voice mail, conference, pbx, IVR etc. The communication enablement framework would have CTI controls on the pbx for generating calls to end points and also would support 3PCC through SIP for interfacing with IP pbx's. Certain Phones can be controlled directly through XML defined actions transported through HTTP to VOIP phones.

Sample Scenario

The cebp concept is best explained through an example implementation for a retail environment. The scenario is to do with a customer experience in store environment where the customer is able to use a kiosk to make a purchase after consultation with store experts over UC supported framework.

1. Customer walks into the store and finds the need to use the product help option in a convenient in store kiosk. The kiosks are driven by XML and the content is delivered through HTTP. The XML templates for several options on the kiosks are generated and stored in product database as part of Store infrastructure and managed by a product application in SAP. Appropriate webservices are invoked between UC application and SAP in order to render the database information. The customer chooses a particular product but finds the need to speak to an expert.
2. The customer chooses the talk to expert option on the kiosk, which gets rendered through XML and HTTP to the UC enablement framework. The UC application there would be alerted by the servlet to trigger a JTAPI application request for pbx to setup a call with the kiosk and particular product expert.
3. The customer is able to be connected to the expert who is available as figured out by presence status update in presence server through methods like XMPP or SIP.
4. The expert is able to, as part of the dialog with customer, show alternate products whose information is pushed to the kiosk by way of product information templates pulled out of database through registered Web services methods by the UC application in the framework. Information is rendered through XML/HTTP to the kiosk
5. The customer chooses the right product, makes a purchase by swiping the card in the kiosk, while in the product screen. The UC application is triggered by the servelets to invoke registered web

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services to handle the payment gateway related functionality for credit card transaction supported by the business process running in SAP.

6. The customer carries the print out from the kiosk as proof of purchase and picks the items at the POS and exits.

Note : The above scenario could as well have been supported through phone itself on an all voice interface. This would have required VXML template support with servlets fetching VXML documents, data from backend business services, resulting in a voice dialog between the customer and the system.

CONCLUSION

CEBP is an emerging technology and analysts believe that it has a few more years before mature adoption by 2013. But there are instances of industry adopting CEBP already. As long as the enterprises see tangible benefits there is no reason to wait for popular adoption timeframe. It is more likely that the industry would wish to be convinced on ROI, Cost benefits and ease of adoption before committing. Enterprises would then like to have the right technologies in place first (like SOA, SIP) and then choose the less riskier business process, to start with, before jumping headlong into full scale roll out. Enterprise best practices sharing coupled with effective hand holding by System Integrators would give the right conviction for enterprise CIO's to make an informed decision.

ABOUT THE AUTHOR

Narasinga Rao, handles Unified Communications and Mobility themes, from the CTO Organization, in Wipro Ltd. He has about 19 years of experience in the Telecom Equipment industry. His interests lie in Enterprise Communications, Business Process Integration, and terminal devices. He serves as General Manager in his current capacity.

ABOUT WIPRO TECHNOLOGIES

Wipro is the first PCMM Level 5 and SEI CMMi Level 5 certified IT Services Company globally. Wipro provides comprehensive IT solutions and services (including systems integration, IS outsourcing, package implementation, software application development and maintenance) and Research & Development services (hardware and software design, development and implementation) to corporations globally. Wipro's unique value proposition is further delivered through its pioneering Offshore Outsourcing Model and stringent Quality Processes of SEI and Six Sigma.

WIPRO IN CEBP

Wipro has extensive engagement in product engineering services as part of Enterprise communication infrastructure and Unified Communications (UC). Wipro also has done several implementations across verticals and deployed UC in various enterprises across Globe, as part of its SI practice. Wipro also has rich domain expertise in verticals such as Retail, transport, healthcare, manufacturing, BFSI etc.. The vertical domain expertise and Telecom product expertise give Wipro the right blend of capabilities to be well positioned for implementing CEBP. Wipro has done CEBP deployments even in its early stage of adoption for Retail and Healthcare vertical. Wipro has COE labs setup which are vendor specific and provides the right environment for innovative ideas in CEBP.

ACRONYMS

CEBP	Communication enabled Business Process
HTTP	Hyper text transmission Protocol
ERP	Enterprise Resource Planning
CTI	Computer Telephony Integration
IVR	Interactive Voice Response
XML	eXtensible markup language
PBX	Private Branch Exchange
SI	System Integrator
SIP	Session Initiation Protocol
UC	Unified Communications
POS	Point Of Sale

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