UC Evolves to Enhance Business Applications

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Section I: The New World of Works Drives UC Evolution

We live in a world of applications. While apps for productivity, entertainment, connection and information gathering are ubiquitous on personal devices, the promise of a similar variety of business applications is slower to emerge. At the same time, enterprise mobility has moved to the heart of business operations. The convergence of cloud computing, device evolution, wireless technology improvements and a growing remote worker population created a perfect storm, driving businesses towards mobility and innovation at a rate never seen before.

As a result, the character of work is evolving. The millennials are entering the work force, accelerating trends towards flexible work hours, flexibility in working at office, home, or any location in between, and device flexibility with nearly all workers seeking the ability to work/collaborate from clients other than a traditional Windows desktop. Today's workers need the ability collaborate from any location and from within favorite business applications. Companies that enable workers to collaborate effectively in this new world of work gain significant advantage over competitors (Exhibit 1); those that don't will slowly become irrelevant.

Additionally the state of apps are changing because of bring-your-own-device (BYOD) initiatives where IT can no longer control the devices and, in many cases, the applications, devices and social media that employees use. Lastly, applications, mobility and social media is changing the nature of customers.

Solving these challenges requires applications to connect with each other and not be siloed from mobile devices and unified communications (UC). It's now time for UC to evolve and become an integrated part of business applications.

Exhibit 1: The New World Of Work Is the Basis of Competitive Advantage

Source: ZK Research, 2013

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Influence and insight through social media

UC was once seen as the best solution to help organizations meet the challenges of this new world of work. However, while it's true UC has given more workers greater collaborative capabilities, the technology itself has yet to reach mass adoption. For UC to become a key enabler of the new world of work, the following evolutionary steps must happen:

- **UC must address more than internal collaboration:** Most UC today is for worker communication with other internal employees. While this is important, UC must enable better business to business (B2B) and business to consumer (B2C) communications.

- **Business processes must become communications enabled:** A communications-enabled business process (CEBP) is a workflow with integrated UC, optimized around communications. CEBPs can significantly reduce the human latency that plagues many business processes, enabling organizations to make better decisions faster.

- **Communications must be more agile:** Business agility has been a key theme for business leaders over the past five years. In an effort to deliver greater business agility, CIOs focus on delivering greater IT agility. However, while many areas of IT are more agile,

communications has yet to evolve in that direction. For organizations to achieve true IT agility, communications must be easier to deploy and embed in other applications.
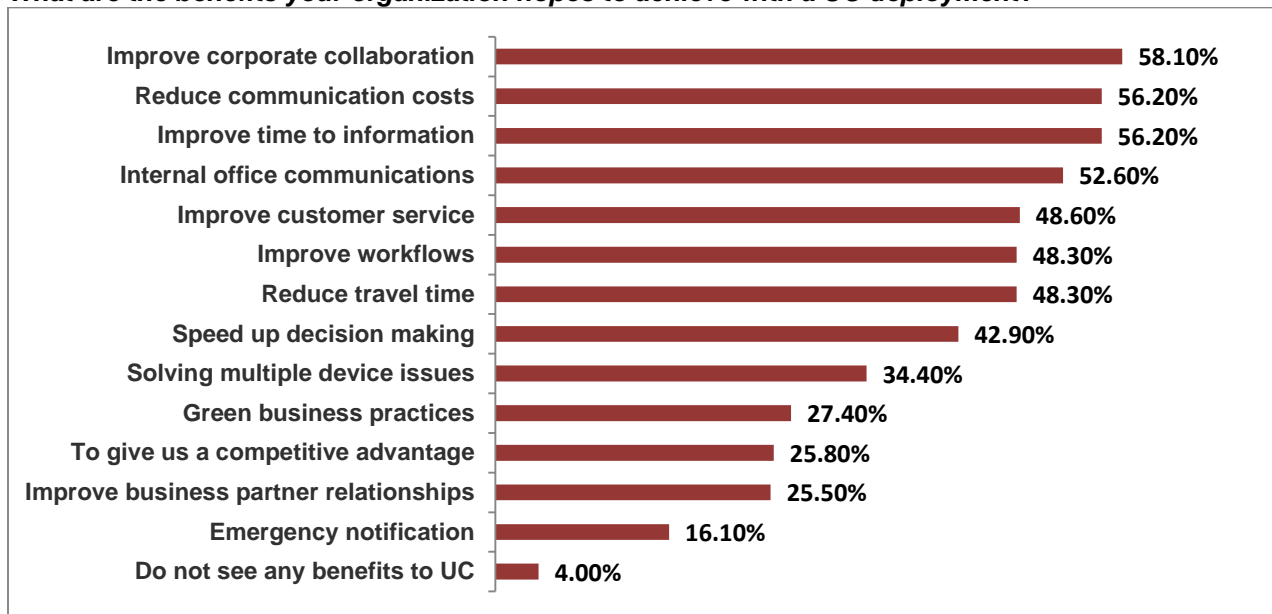
- **UC must evolve into an application enablement platform:** While UC applications do provide value to employees, the silos business applications and UC tend to operate in limits their usefulness. To enable business, UC functionality must be integrated into applications workers use today. To accomplish this, UC must evolve from a discrete application to a platform developers can use to build smarter applications with UC functions integrated into them.

Section II: The Challenge with UC Integration Today

The value proposition of UC is multifaceted. Most organizations look to UC to reduce the cost of collaboration and communication costs (Exhibit 2). However, recently IT leaders have been using UC to do more and improve the time to gather information, improve workflows and create new ways of interacting with customers.

Exhibit 2: UC Benefits Revolve Around Business Enablement
What are the benefits your organization hopes to achieve with a UC deployment?

| Benefit	Percentage
Improve corporate collaboration	58.10%
Reduce communication costs	56.20%
Improve time to information	56.20%
Internal office communications	52.60%
Improve customer service	48.60%
Improve workflows	48.30%
Reduce travel time	48.30%
Speed up decision making	42.90%
Solving multiple device issues	34.40%
Green business practices	27.40%
To give us a competitive advantage	25.80%
Improve business partner relationships	25.50%
Emergency notification	16.10%
Do not see any benefits to UC	4.00%

Source: ZK Research, 2013

These advanced uses of UC cannot be achieved if UC remains a set of applications isolated from other business applications. To combat this, some developers and software vendors attempt to integrate UC capabilities into applications but have had limited success for the following reasons:

- **It requires legacy telephony knowledge:** Building communications-enabled applications usually requires the developer have deep knowledge of computing telephony integration (CTI). Very few developers understand modern programming languages as well and have programming knowledge of legacy telephony environments.

- **A fragmented developer environment:** Because UC has evolved through the integration of a number of discrete technologies, developer tools for UC tend to be fragmented. A developer looking to build a UC enabled application would have to work with a number of loosely coupled tools such as Web services, contact center SDK, mobile SDKs and contact center SDKs (Exhibit 3). This makes integrating UC and business applications extremely difficult.

Exhibit 3: UC development is highly fragmented
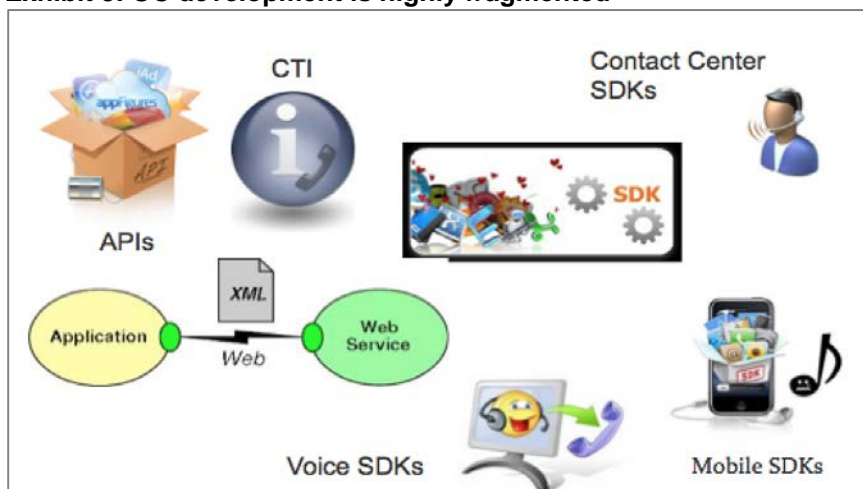
Source: ZK Research, 2013

- Long and costly development cycles. Because of the fragmented tool kits and the need to understand CTI, organizations would need large developer teams to build even simple applications. This fragmented development would create application development times of several months. This could sometimes cause organizations to miss or be late on key market opportunities.

While the value proposition of communications enabled applications is well understood, the developer efforts are far too great for businesses to capitalize on the opportunities. What's required today is a developer environment that is aligned with today's market.

Section III: Avaya Aura® Collaboration Environment is Breakthrough in Communications Enablement

To enable developers and ISVs to build applications that are communications enabled, a new approach is needed with regard to developer tools. What's required is an open, extensible approach to collaboration enabled applications that's designed for rapid development of applications using modern programming principals.

Recently, Avaya released its Avaya Aura® Collaboration Environment, its latest developer environment to enable its customers and developers to quickly build communications enabled applications. Collaboration Environment is a true breakthrough in UC application development and was designed with the following in mind:

- **Uses modern programming languages:** Collaboration Environment is aligned with programming environments that social, mobile and cloud developers use today. This includes JSON, XML and REST.

- **No knowledge of CTI or telephony required:** Most cloud, mobile and social developers have little to no knowledge of legacy communications. Collaboration Environment is designed to require no telephony or CTI skills but still provides a rich set of enterprise-grade communication capabilities.

- **Reusability of code:** Collaboration Environment utilizes a snap-in approach that enables applications to be written once and then be utilized in a number of applications.

- **Cloud-ready:** Collaboration Environment is completely virtualized, meaning developers and ISVs can build applications ready for the cloud.

- **Multichannel capabilities:** Collaboration Environment was designed with full multimedia capabilities, including traditional voice, mobile, email, SMS and video functionality.

- **Secure and manageable environment:** The applications can be provisioned and managed through Avaya Aura® System Manager, part of the Avaya Aura Platform, which affords the highest levels of security, availability and scalability.

- **Single developer interface:** The Collaboration Environment Software Developers Kit (SDK) provides a single interface into all of the Avaya Aura UC capabilities and has a complete range of modalities and applications.

The Avaya Aura Collaboration Environment is a complete environment to allow application services to be built on a single platform (Exhibit 4).

Exhibit 4: Avaya Aura Collaboration Environment
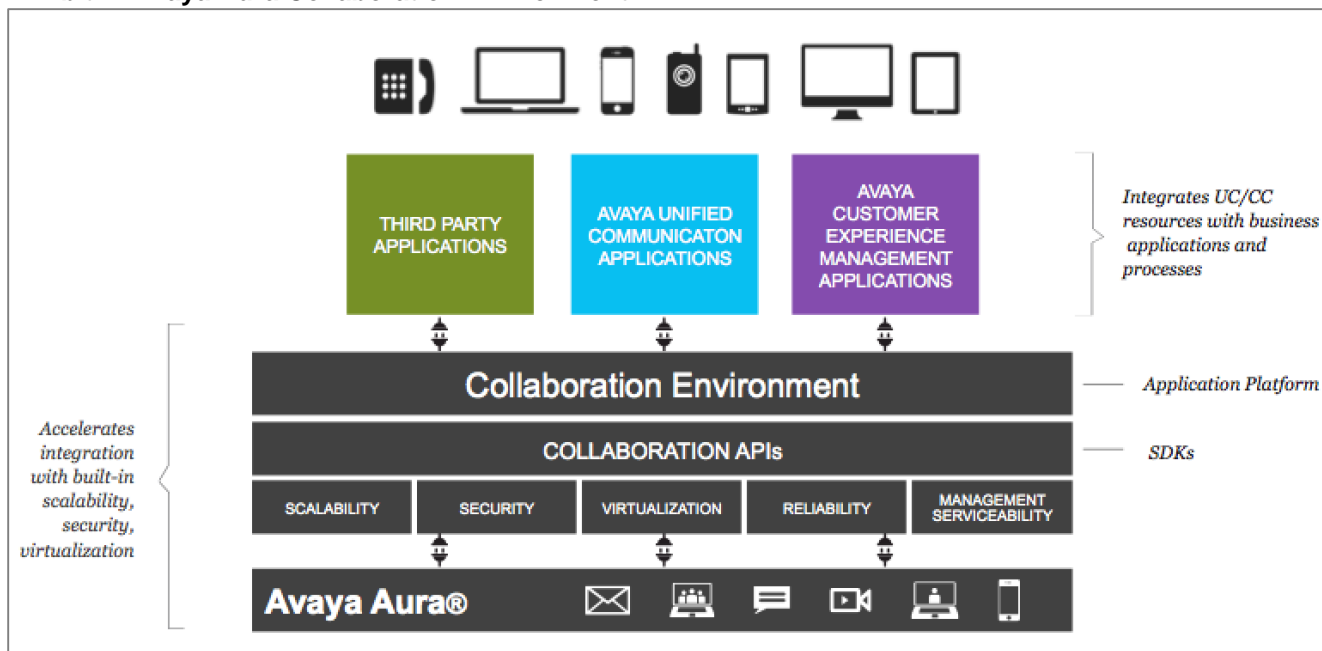
Source: Avaya

The following four case studies demonstrate the richness, ease-of-use and flexibility of Collaboration Environment.

Case Study 1: NACR Speeds Up Communications Development

In the early '90s, North American Communication Resource, (NACR) was founded to help companies meet business communication needs. NACR is a longstanding Avaya partner and builds custom applications with communications integrated into them.

NACR is a member of the Avaya Aura Alliance — a group of highly accredited Avaya Business Partners that jointly support multinational enterprises by ensuring a globally consistent framework for processes, pricing, training and certifications.

NACR provides value to Avaya customers by enhancing Avaya Aura Platform communication features. For example, NACR built custom features for management of universal time-of-day restrictions for Avaya Aura applications. Using NACR applications, Avaya customers can allow or disallow calls to be placed within certain hours or only to certain locations or any other restriction the customer may want to impose.

Through Collaboration Environment, NACR was able to rapidly create an application with a number of advanced features including a selective notification capability that notifies key individuals when specific customers call. Enterprises can also create many personalized call features through the NACR solution.

With the Collaboration Environment development platform, NACR achieved the following benefits:

- **Rapid development of applications:** The application took only two days to build with Collaboration Environment. Bruce Birt, a convergence architect for NACR, estimated this would have easily taken 2-3 weeks with a legacy platform even with NACR's deep telephony knowledge.

- **Solutions for digital and IP handsets:** Part of the Collaboration Environment SDK is the ability to move a telephony stream between SIP and H.323 stations. Competitive platforms could have handled IP, but not the legacy handsets.

- **Lower code volume:** The tools within Collaboration Environment were described as simple to use and quick to get started. Birt estimates because of the simplicity of Collaboration Environment, the code volume was on tenth of a legacy platform's.

NACR is a traditional telephony developer and even with the deep knowledge in communications, Collaboration Environment provided value, allowing NACR to get products to market faster, with less development effort than with traditional platforms.

> *"At NACR, we were able to create custom telephony features for our customers quickly because of the simplified structure of Collaboration Environment. Additionally, this was the only solution that would enable us to create feature uniformity across digital and IP handsets, giving us unique capabilities to take to market"*
>
> – Bruce Birt, Convergence Architect, NACR

Case Study II: User Events Addresses the Communications Big Data Problem

UserEvents is a communications application developer specializing in event stream processing and event correlation technology. The company builds business applications, such as its flagship product, CxEngage, to address specific pain points to transform customers into market leaders through analysis of communications and business data.

CxEngage can be thought of a big brain that consumes all transactions and looks for patterns in events that prompt outbound communications, such as voice call or SMS. This allows customers of CxEngage to better service clients and ultimately close deals faster.

For example, in the banking industry, high value products are often not converted into closed sales, despite use of multiple customer channel options, which make it easy to submit applications. CxEngage can identify purchase intent by collecting events from customer interactions and engage at the right moment, in the best way possible (Exhibit 5).

CxEngage provides banks with the ability to detect when an online mortgage application has been abandoned, and automatically initiate an SMS so a customer service representative can help the individual complete the form.

Exhibit 5: The CxEngage Customer Journey
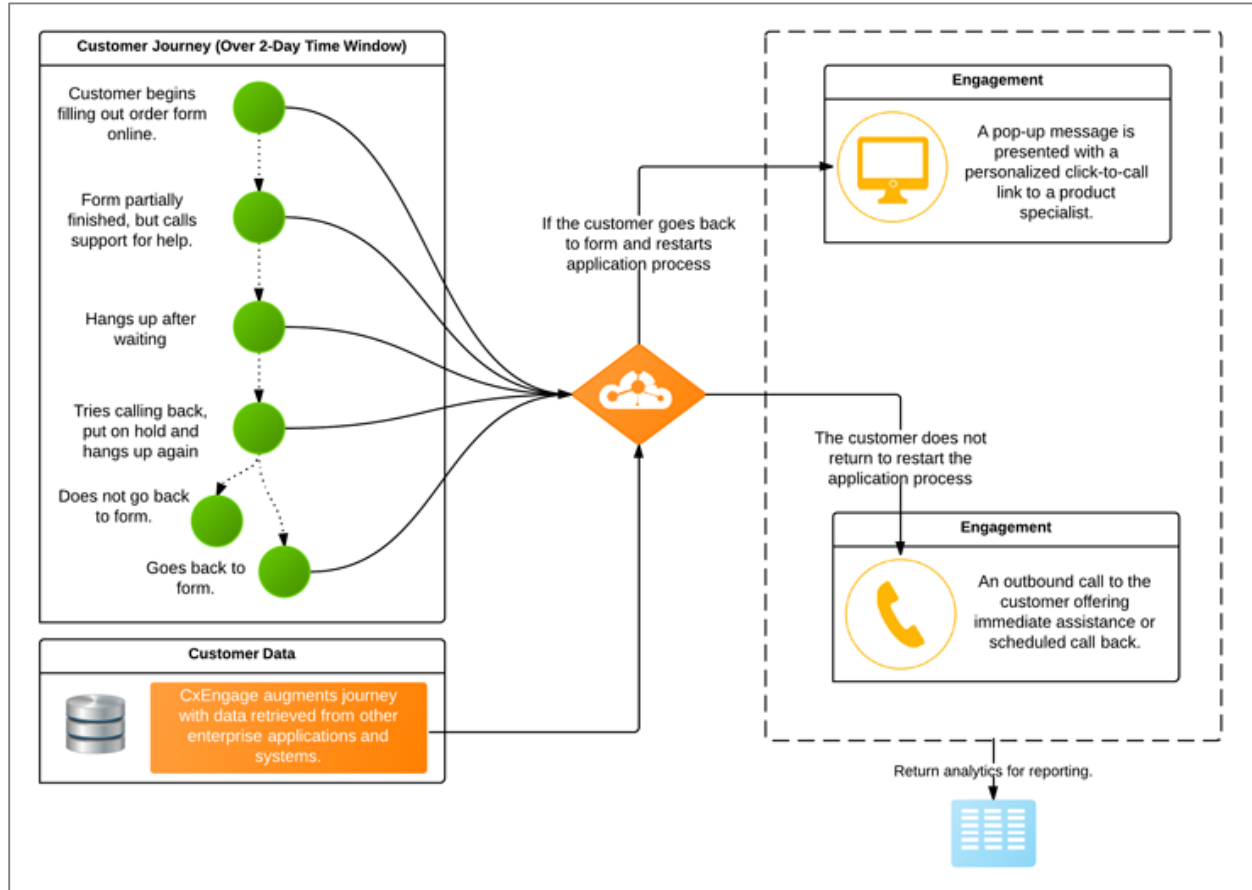
Avaya Aura CE was used in the application to provide a single connection to all modes of communication including traditional voice, mobile, SMS and social interactions. Through Collaboration Environment, UserEvents realized the following benefits when communication enabling CxEngage:

- **Communications features with no communication knowledge:** UserEvents has a young and user-interface-focused development team with no knowledge of traditional communications and CTI. In fact, Jeff Thompson, CEO of User Events, stated the company purposely hired young developers that could focus on the user interface rather than communications integration. Collaboration Environment provided UserEvents with access to all modes of communications without the requirement of prior telephony skills.

- **Rapid service development:** Collaboration Environment proved a straightforward, simple-to-use development platform. Communication enablement of CxEngage took no more than four to five days, including quality assurance testing. Thompson estimated this would have taken at least five weeks without Collaboration Environment, and UserEvents would have had to hire communication focused developers.

- **Reuse of code:** The developers of CxEngage created a number of snap-in modules as an interface between Collaboration Environment and the application. This enabled them to write code once, but then be able to use snap in, such as automated dialing or SMS, multiple times.

- **Multichannel capabilities:** Because Collaboration Environment is built on a foundational concept of multichannel communications, CxEngage can interact with customers through a number of different channels including social, mobile and voice.

UserEvents is a traditional, non-telephony focused developer that quickly enhanced its core product, CxEngage, through integration of communications features because of the simplicity and ease-of-use of Collaboration Environment.

> *"We have a very young group of developers, none of them with any traditional telephony experience. We wanted programmers that were focused on UI not communications. The Avaya Aura Collaboration Environment suite was straightforward and simple for our developers and led to rapid development of our software. We accomplished in four or five days what could have taken us four or five weeks with legacy tools."*
>
> – Jeff Thompson, CEO UserEvents

Case Study III: Plantronics Leverages Aura CE to Enable a Unified Experience

Plantronics has focused on building lightweight, high-quality audio headsets since it was founded in 1961. Since then, Plantronics continued to build innovative products that improve the audio experience through noise reduction, call clarity and unique ergonomics.

As part of the overall vision of building a unified experience, Plantronics wanted to create a seamless experience for users between a mobile device and a desktop phone. Ultimately, it would like to enable bidirectional movement of calls, but chose to start with mobile-to-desktop call movement.

Plantronics collects a wealth of contextual information about users of its technology. This includes proximity information, wear state (whether the device is being worn or not), call state, activity, security information and Active Directory data.

The first phase of the Avaya integration was to use Collaboration Environment to allow a worker to transition a call seamlessly from a mobile device to a desk phone. As a worker approached the desk, contextual information triggered a dialog box to pop up on the user's desk phone. The user can then decline or accept transition to a desk phone.

Once Plantronics was through the integration phase, it started to consider what other functionality could be added. Plantronics is currently working on building intelligent updating of presence information. With this capability, user presence information can be updated automatically when they approach a PC.

This includes updating status on Avaya Flare® and Scopia software.

Plantronics built this functionality quickly using Collaboration Environment. Karim Damji, director of UC Ecosystems, claimed the number of communications snap-ins Collaboration Environment has makes it easy to quickly create integration points between Plantronics and the Avaya Aura Platform. Collaboration Environment provided Plantronics with the following benefits:

- **Ease of programmability:** The developer environment is largely drag-and-drop and is simple to use. Although Plantronics has many strong technical developers, the ease of programmability does enable faster development cycles.

- **Flexibility of programming:** In addition, to providing a number of snap-ins, Collaboration Environment can also be leveraged through other programming methods such as JSON, XML and REST APIs.

Although Plantronics is a very sophisticated communication company, the flexibility and ease of the Collaboration Environment enabled it to rapidly build custom integration points between Avaya and Plantronics.

> *"Almost all vendors have a set of disjointed APIs. Collaboration Environment provides traditional APIs as well a number of other development options making the communications infrastructure invisible to programmers. Collaboration Environment is the way of the future."*
>
> – Karim Damji, director of UC Ecosystems, Plantronics

Case Study IV: Eutech Creates a Smart Workplace using Collaboration Environment

Eutech builds software for workplace management of building and retail environments. Recently Eutech built an application for the Middle Eastern high-end retailer, Paris Gallery. The application is designed to meet the following goals of Paris Gallery:

- Increase the productivity of the sales force
- Embed collaboration and communications into the Paris Gallery application
- Lower costs for Paris Gallery
- Improve the customer service and drive more impulse sales

Paris Gallery is a retail chain that offers high-end cosmetics and luxury goods. Customers of the retail store often make purchases of several thousand dollars so having experts available at a moment's notice could be the difference between a large purchase and a customer walking out.

One method of having local experts available was to have dedicated experts in each location but this would obviously be very expensive as most resources would be underutilized most of the day.

The Eutech application combines customer information with collaboration tools and allows an in-store sales person to immediately find a remote expert to interact with a customer over video. The application can also show customers inventory and other information to provide a high-quality, personalized experience. Customers of Paris Gallery want to be recognized and served well and Eutech can deliver that enhanced experience at a low cost.

Eutech was able to leverage Collaboration Environment as follows:

- **Rich multimedia experience:** Despite having no developers with communications experience, Eutech delivered a high quality, voice and video experience in just a few days.
- **Flexible deployment models:** The fact that Collaboration Environment is software-only implementation enabled the company to offer the solution as a cloud-based application as well as premises deployment.
- **Mobile application enablement:** The multimodal capabilities of Collaboration Environment gave Eutech the capabilities to build high-quality applications on mobile devices. This is something Paris Gallery considered a game changing application.

The Avaya Aura Collaboration Environment is core to the strategy of Eutech's smart workplace platform. It helps accelerate development of applications where time-to-market and speed is key.

> Avaya's vision and expertise in open, transformative collaboration helps us excel in developing game-changing cloud-based solutions."
>
> — Dr. Hari Gunasingham, CEO, Eutech

Section IV: Conclusion and Recommendations

The new world of work is changing the competitive dynamics of business. Collaboration among the extended enterprise to make decisions rapidly is the basis of competitive advantage. IT leaders must create customer experiences that leverage cloud, mobile, video and social media. For this to happen, business applications and communications technology must come together. These areas of IT have lived in silos for decades, making it almost impossible to create true communications-enabled applications. To raise productivity and lower costs, IT leaders must make communications enablement of business applications a priority. To help IT leaders get started, ZK Research recommends the following:

- **Embrace communications-enabled applications**. While this has been a topic of conversation for years, integrating communications with business applications was a difficult, time consuming, expensive process. Development platforms such as Avaya Aura Collaboration Environment can remove many barriers to building these types of applications.
- **Focus on user experience**. The primary focus of application developers should be to build rich, game changing user experiences rather than focusing on the nuances of communications integration. The user interface and overall experience will ultimately determine success.
- **Start with processes with high human latency**. Integration of communications with business applications can streamline processes by removing the human latency that bogs down collaboration. This typically happens when a process is handed off from one individual to another, or some sort of discrete expertise is required. Focusing on the right applications can provide rapid ROI.