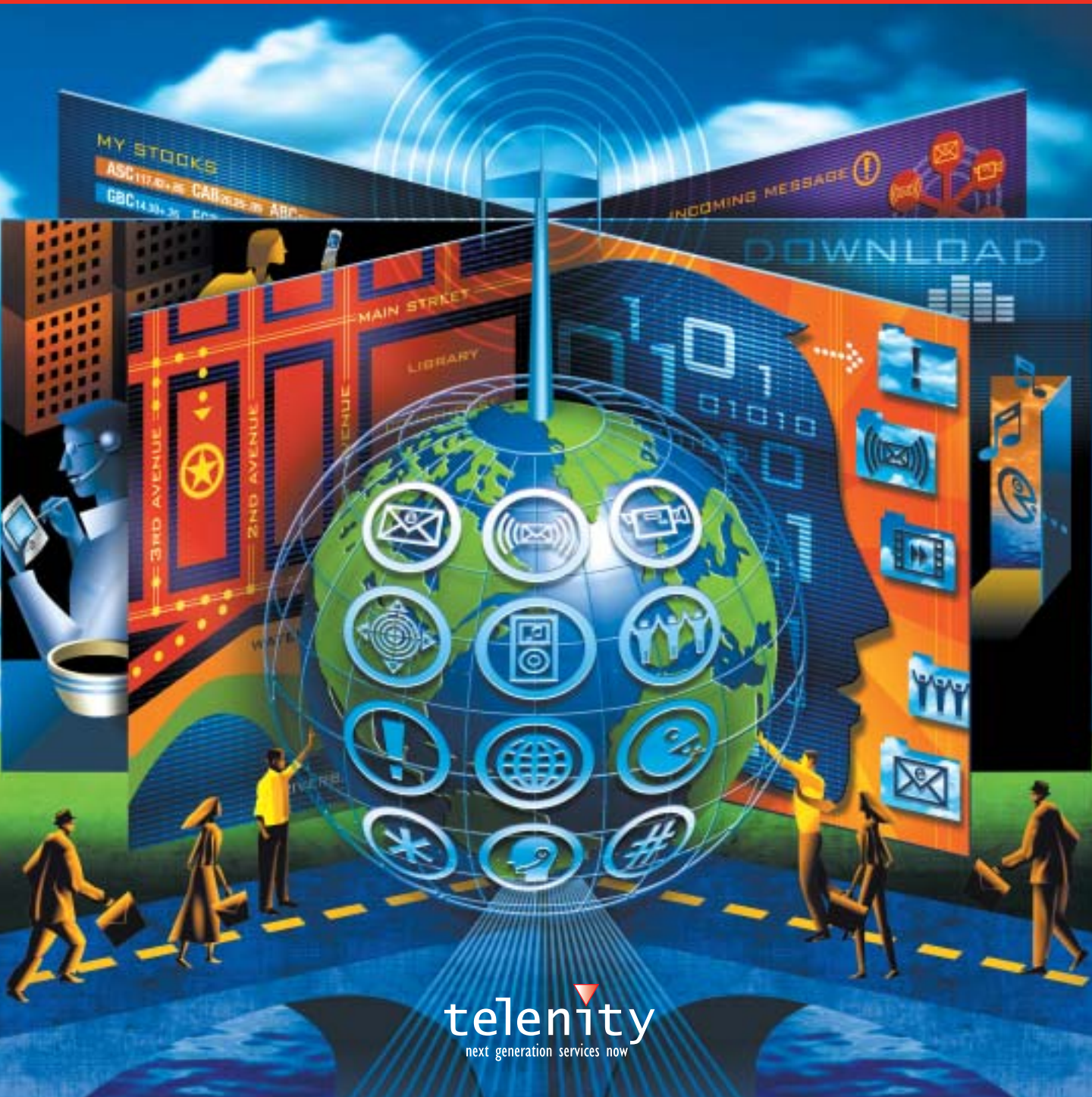


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Next Generation Services Now

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The Programmable Network



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The Programmable Network — Reaching the Breadth and Depth of Opportunities

A reporter recently asked me about the secret to Telenity's success. "There is no secret," I responded. Success for Telenity is generated in the same manner as it is for our customers: Revenue grows with the proper alignment of services that are built on a platform that is poised to seize opportunity.

Some see the economic prowess in the communications industry cloaked in a shroud of mystery. In reality, reaching the pinnacle in this industry is like attaining prominence in any other business. Maximizing revenues while keeping capital expenses and operating costs in check generates success. However, one cannot do it alone. Good partners are a key in capitalizing on the breadth and depth of opportunities to create lucrative returns.

Telenity and its opportunity-driven Canvas® suite of products are that key. Our customers energize their ARPU by accelerating service creation and deployment with the Canvas SDP, Service Delivery Platform. Canvas SDP utilizes graphical service creation tools that closely resemble application design in a PC environment. Its open architecture is easily incorporated in existing infrastructure platforms for rapid service creation, either internally or via third-party developers. With Canvas SDP, new services are launched in a matter of weeks rather than months.

Rapid integration of advanced services—including bundling voice with location-enabled services, multimedia messaging, streaming video, multicast and ringback tones—is one aspect of the Canvas SDP appeal. Content management is another. Because content has propelled the growth in new services, content management is critical. Canvas iCON™ manages the full lifecycle of content; from creation and aggregation to delivery and

revenue sharing. Canvas is open-standards-based without compromising leading edge technology. Whenever standardization efforts do not keep up with us, we move forward with our technology and share it with the standards organizations to make sure the standards move along the same lines as we do. That is what we did in the standardization of location, content and SDP integration.

Swift service creation combined with integration of content with service logic and the tools to manage these services is what we call "The Programmable Network." It is a strategic philosophy that carriers worldwide are adopting. Yet, Telenity is the only company of its kind that delivers the breadth of service creation and content management combined with the depth of advanced messaging and location applications and services deployed on a common, open framework.

It is not surprising, then, that the Canvas product portfolio is increasingly the preferred choice among application service providers, mobile virtual network operators and carriers of wireless, wireline and VoIP networks for launching profitable value added services. As communications industry evolves from the current set of technologies to next generation IP networks, Telenity is here to help simplify the migration with its technology, know-how and extensive experience, whether it is an evolution or a revolution to next generation services.

Your success is our success. Let Telenity unlock the potential of your current or next generation networks and make it programmable for value added services with our Canvas suite of products.

Dilip Singh
President, Telenity

CONTACTS

CORPORATE HEADQUARTERS

755 Main Street,
Building No. 7
Monroe, CT 06468 USA
Tel: +1.203.445.2000
Fax: +1.203.268.1860

EMEA HEADQUARTERS

AHL Serbest Bolgesi No. 472
Yesilkoy 34149
Istanbul, Turkey
Tel: +90.212.468.2100
Fax: +90.212.465.0910

LONDON OFFICE

1 Ropemaker Street
London EC2Y 9HT
United Kingdom
Tel: +44.20.7153.1086
Fax: +44.20.7153.1186

APAC HEADQUARTERS

Level 21, Centennial Tower
3 Temasek Avenue
Singapore 039190
Tel: +65.6549.7445
Fax: +65.6549.7001

For more information contact Telenity at info@telenity.com or visit www.telenity.com

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End-to-end Solution is Template for Success

The search is over. No longer are network operators subjected to excruciatingly long product development cycles that generate cookie-cutter solutions. Finally a customized template for success that frees them from proprietary shackles is just a click away.

Canvas® iCON™ and Canvas SDP uniquely blend the performance of telecom with the universal ease of the point-and-click IT world. The result is rapid creation of value-added services that boost average revenue per user deployed in a strategy that cuts expenses as well as time to market.

Service creation in telecom has seized the fast lane aboard the proven application-development model that thrives in the IT world. Here a plethora of original products are continually built based on standardization and open architectures. Developers in one part of the world create applications for a mass audience they may never know, but with whom they are linked via a common communications network.

Telenity employed the same strategy in building its Canvas SDP (Service Delivery Platform). Canvas SDP is designed with a graphical interface and open architecture common in the IT environment. This accessible platform allows network operators to develop applications in-house or to partner with third-party developers. With Canvas SDP, such collaboration can quickly snowball and form the basis of a mass-market development community. Instead of serving just one market, network operators can serve a world audience with rapid product proliferation.

“When you look at traditional value-added services in wireless and landline telecom, operators have been able to offer only a small number of new services every year,” explains Okan Azmak, Telenity marketing and business development manager. “In the IT industry, there are new applications coming out every couple of months for a variety of markets, from the enterprise to the consumer. This happens so quickly in the IT world because everything is designed to de facto standards and common operating systems. With Canvas SDP, we have brought the same strategy to telecom by opening networks for service creation. Our platform builds on existing infrastructure investments, but greatly shortens the product-development cycle.”

Another big part of Canvas SDP's appeal is the ease it offers for the integration of new services into the existing network systems, such as core network elements, OSS and customer-care systems. This streamlined functionality greatly reduces capital and operating expenses because once Canvas SDP is deployed in the network, carriers do not have to replicate installation, integration and verification efforts for each new service.

When Wataniya Telecom opened its Wireless World Application Development Center in Kuwait, it brought to the Middle East the latest technologies and the talent to realize untapped potential.

“Our goal with Wireless World is to bring to life the products and services envisioned by mobile content providers, service-creation developers, governments and private industry,” explains Andrei Torriani, chief product development and technology officer, Wataniya Telecom. “We have deployed the Canvas SDP along with Canvas

iCON (Intelligent Content Management Platform) so that the application developers can quickly bring form to the design that they have imagined. So, although we are designing multimodal products that combine voice, messaging, e-mail and/or video, we can create them all from one platform and do so very quickly. This speed and versatility gives us a decided competitive advantage.”

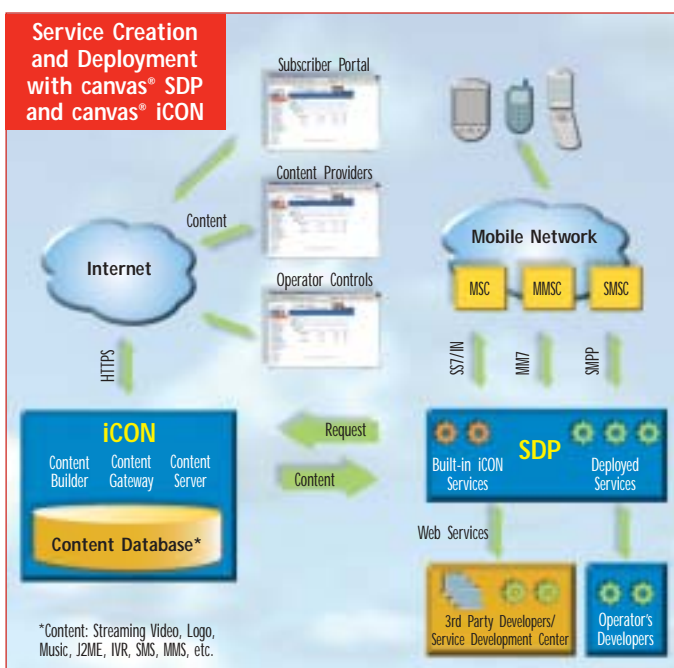
Mass Appeal

The universal appeal of the Internet lies in its ease of navigation and the ability for users to simply customize online communications. Canvas iCON is built on the same principles.

“We see a great deal more of personalized content creation,” says Nitin Patel, Telenity director, marketing and business development. “For example, the end-user can create his own ringback tone using Canvas CoolRings™. When a caller dials the CoolRings subscriber, he or she will hear preselected music or a message chosen by the subscriber rather than hearing a ring tone.”

Canvas iCON orchestrates all facets of content life-cycle management, from creation of content to publishing and billing, and all steps in between. This end-to-end support greatly simplifies the delivery of new products and services in a wireless format.

“Canvas SDP, iCON and the entire suite of Canvas products offer both revenue generation and cost optimization in the network,” says Azmak. “With Canvas products, operators can deploy a wide variety of revenue-generating, new services quickly, while they minimize their capital and operational expenditures.”



The Programmable Network...Tapping into Golden Potential

Golden opportunities sometimes hide in plain sight. Challenged with the dual mission of increasing revenues while improving the bottom-line, many network operators may focus on the next big thing, and overlook the prospective gold mine that lies dormant in their existing infrastructure.

Telenity enables network programmability to unlock that embedded potential with a powerful set of tools known as Canvas®. The Canvas SDP (Service Delivery Platform) and a wealth of messaging, location and content-related Canvas products open the embedded infrastructure to rapid service creation. The result is a variety of multifaceted, integrated products and services such as voice over IP, voice interactive multicast, ringback tones, video calling, ring-tones, logos, games, tele-voting, advertising, subscriber alerts and many more that increase revenue and reduce subscriber churn while keeping operating expenses in check.

Industry leaders discuss the programmable network and Telenity's role in tapping into its golden potential.

Ilhan Bagoren, Telenity vice president of marketing:

The resounding question from carriers is, "How do we create new products while maintaining our fiscal guidelines?" Our strategy is to help network operators decrease their capital expenditures (CAPEX) and operating expenditures (OPEX), and at the same time increase their average revenue per user (ARPU).

Market studies and carrier surveys estimate that for every \$10 that is added to the ARPU, carriers must try 500 new, value-added services. Many of those services would require purchasing a number of different vertical applications and then integrating each of them into a network.

Canvas SDP offers a very practical solution to these challenges, by combining application services and the service-creation environment so that the network integration is done upfront. All the new applications and services can be launched seamlessly. Not only does this dramatically cut the time to deployment, it also saves on the cost of duplicating infrastructure and frees network operators from the piecemeal approach to adding new applications and services.

Cap Gemini Ernst & Young: In creating early services, operators typically followed a service-by-service architecture approach with scant regard to scalability and production economics. The resulting patchwork architecture—both in the service creation and IT layers—poses a significant constraint on the operator's ability to rapidly design, implement and launch new services. But it is this very attribute—i.e., speed to market—that will be key to gaining competitive advantage in the future mobile market where a growing number of services will be offered with shortening life spans.

The solution to the operators' integration challenge appears to be the new service platform approach, which involves a common middleware and standardized service creation environment.

Ilhan Bagoren: The trend in both wireless and wireline systems is to open networks to third-party developers and vendor collaboration. Telenity and Nortel Networks recently joined forces to launch Canvas LES (Location Enabling Server) and Canvas RTMS (Resource Tracking and Management System) with Nortel Network's Mobile Location Center (MLC). This is a winning effort for all concerned, especially the customer, Telecommunications Services of Trinidad and Tobago LTD (TSTT).

Hendrickson Herbert, New Mobile Technologies manager for TSTT:

We expect to see a rapid growth in our revenues from location-based services with the deployment of this solution jointly provided by Telenity and Nortel. It will empower us to leverage existing investments in our network

infrastructure and make our data services more useful by adding location intelligence.

Ilhan Bagoren: Network operators are integrating instant messaging, text messaging and other data-centric and multimodal applications into their platforms. But they don't want to have to reconstruct their networks and retrain their personnel with every new service.

The Canvas family of products solves that dilemma with services that are easily created and smoothly integrated. One carrier might combine Canvas MultiCast and Canvas Multimedia Billboard to disseminate interactive interviews and multimedia advertising. Another might blend Canvas® PFS (People Finder Service) to locate friends with Canvas PayForMe, which allows the mobile callers to reverse charges on a prepaid account. The key thing is that the operator is encouraged to try new things because it only takes two to eight weeks to create, test, simulate, validate and turn up a new service.

Ed Verney, HP director of service interaction product family:

The days of just selling technology are gone. Beyond the technology, services are key. They must be simple to use and interactive. This is only possible with flexible, open systems such as Telenity's Canvas platform integrated with the HP OpenCall Media Platform (OCMP). Our joint solution provides carriers with the versatility to offer a wide array of personalized services for their customer base.

The trend in both wireless and wireline systems is to open networks to third-party developers and vendor collaboration.
—Ilhan Bagoren
Telenity



Together with Telenity, we have had success with Azercell in Azerbaijan, and in the Ukraine with the Canvas MMSC, SMSC, Voice Mail and SmartAlert applications and services. Now we are jointly deploying unified messaging and fixed-line short message services for Turkish Telecom. This is one of our largest deployments of the HP OpenCall Media Platform and certainly our largest deployment of unified messaging.

Sevket Sezen, Turkcell networks division head: Our customers want to manage their voice and data calls. Their primary concern is that they can send and receive messages, video and e-mail in a secure and seamless fashion at a time of their choosing. At Turkcell, we deploy a range of Canvas products to deliver this customer-oriented service. With Canvas SmartAlert, subscribers get a list of the calls they missed when they were unavailable. We create new products using Telenity's Canvas SDP and Canvas LES that pinpoint geographic sites and destinations while they vigilantly guard the subscribers' privacy. Both our prepaid and postpaid customers have come to expect the original voice-enhanced data services that we create with these powerful, graphically driven tools.

Ed Verney: Telenity and HP have been working together for about three years. Azercell was our first joint win. Telenity successfully deployed their Voice Mail system and SmartAlert service on top of HP OCOMP. And we have been able to reduce CAPEX for Azercell. Azercell doesn't have to roll out additional platforms per each new service that they want to turn on. They can run all of the services on the same platform.

Laurent Amar, VoiceAge president: When we're talking about next generation messaging, we're really talking about content and how to give users the same wireless experience with multimedia services that they take for granted when on their desktop PCs. Telenity and VoiceAge are making it practical and affordable for network operators to quickly expand their MMS offerings by optimizing multimedia files for the receiving device. Operators can just as aggressively brand those offerings to protect their revenue growth.

Ed Verney: Carriers need solid solutions that operate from day one that are highly scalable as they grow their business. Telenity and HP's successful deployment of the integrated Canvas product suite with the HP OpenCall Media Platform is a proven solution that customers can rely on.

Look to the Future

Change is one of the few certainties in business. With literally thousands of VoIP carriers worldwide, IP is quickly melding into traditional wireline and wireless networks, thus transforming voice service into yet another Internet application. The challenge for carriers is to maximize their embedded infrastructure investments while adapting their networks to this converged world.

As carriers adjust to this change, they are tasked with living up to their customers' mounting expectations for full mobility, device independence, service portability and personalization, all integrated into an easy-to-use device. Fulfilling that wish list requires the combination of content and services delivered in a

seamless mode, spanning both current and next generation networks.

Fortunately, creativity without limits has arrived in the form of Telenity's Canvas® family of products. Canvas service delivery approach is a bridge that unifies the PSTN, next generation IP and mobile systems, including 2G, 2.5G and 3G networks. The result is a foundation for rapid creation of a variety of revenue-generating services and applications, developed by network operators and ASPs.

Canvas's advanced yet intuitive service-creation tools allow carriers to manage and deliver multimodal, multimedia content; create and deploy new services; launch messaging and location applications;

and, present the entire array on a handset that is designed with a graphical user interface. This end-to-end solution greatly simplifies access to and use of these services.

The unique architecture of Canvas scales with the needs of the network operator simply by adding off-the-shelf components. Canvas's advanced distribution architecture ensures carrier-grade reliability and scalability without compromising performance.

The best-of-breed Canvas product suite is standards based and interworks with third-party platforms and applications. Canvas also offers reusable service building blocks that can easily integrate with existing solutions in the network. Yet, choosing Canvas as a complete solution reduces both CAPEX and OPEX through a common look and feel to services and applications, resulting in faster and easier integration. Now that's a change carriers can embrace.



Messaging Modes Converge in New Interactive Age

On any given day, billions of messages are transmitted between subscribers across China. It is estimated that more than half a trillion messages were sent worldwide in 2004. The world has arrived at this new interactive age and messaging is leading the charge.

What began as a one dimensional, text-driven short message service (SMS) is quickly blossoming into instant multimedia messaging service (MMS) combining text with images, video and audio. Unified messaging service (UMS) adds another layer of communications that gives subscribers a variety of options of how and when to access content.

Today, these messaging mediums are converging on the screen of a handset, transforming this little device into a powerful portal for a variety of instant communications while giving subscribers a true multimodal experience.

A More Perfect Union

The marriage of voice, e-mail, text, video and multimedia is a natural alliance to satisfy the communication needs of the mobile workforce and consumers alike. The success and growth of voice-mail shows that messaging—SMS, MMS and UMS—is and will be one of the most lucrative mobile services to increase average revenue per user (ARPU) and reduce subscriber churn.

According to Ovum and Juniper, mobile data revenues will reach \$218 billion in 2007 with messaging representing approximately 80 percent.

“Messaging is a clear business case and key revenue generator for both wireless and wireline carriers,” says Nitin Patel, Telenity director, marketing and business development. “However, it is of little value if subscribers of different networks cannot easily share their content with one another.

“One of the main hurdles the industry is addressing is interoperability,” explains Patel. “All of the Telenity Canvas® messaging products, including Multimedia Messaging Service Center (MMSC), Short Message Service Center (SMSC) and Unified Messaging System (UMS), address this issue and work seamlessly across different network technologies. They are based on an open architecture, supporting open standards. Network operators can scale their services up or down as they wish because the Canvas design is fully distributed across all its products, and it is fully modular.”

Azercell put that scalability to work when it deployed the Canvas messaging products.

“Canvas MMSC brings a new level of finesse to scalability, service development and content provisioning, and does so in a collaborative way,” says Serdar Canogullari, general manager at Azercell. “This makes the network very attractive to application service providers and application

developers. At the same time, it ensures that we can choose to create our own services, work in collaboration with others, or even resell services, all of which can increase revenues so the investment made in the next generation network can be justified.”

Blending technologies from an operations perspective is one feat easily surmounted by the Canvas suite of products. Spurring revenue creation with multimedia and multimodal applications and services is another. The youth market that enthusiastically embraced text messaging is now an early adopter of multimedia messaging.

The Gartner group estimates that in Europe alone sales of camera phones in 2004 will reach 150 million units, just over a quarter of all mobile handset sales. Add to that services like Canvas PFS, People Finder Service, where subscribers can locate friends in their current vicinity and exchange messages with maps, movie trailers, city hotspot information instantaneously and it's easy to see that messaging is a dynamic, multisensory, multimode approach to increased revenue.

Today, many carriers maintain separate platforms for each messaging service. Canvas UMS solves this problem. It bridges different messaging services by supporting the storage and delivery of voice, fax, SMS, MMS, e-mail and video-mail in a single mailbox using an IP multimedia store. It provides a common user interface across all services, making user experience seamless and intuitive.

When Timing is Right

Time is money in every business. In the competitive communications sphere, time to market and cost of deploying new services are largely dependent on the flexibility and versatility of the operating platform. Built upon open APIs, Canvas messaging applications provide toolkits for in-house and third-party developers facilitating rapid service creation and reducing costs.

Network integration is another key component to this operating efficiency. All Canvas messaging applications share common tools for management, maintenance and provisioning that are easily integrated into existing networks.

Through Canvas products, new revenue-generating services can be developed, validated and deployed commercially quickly and effectively saving valuable operational and capital resources by building on a shared infrastructure for all services. Such a message is always relevant.



Location-Enabled Services Find Their Place

Location-enabled services evoke images of emergency response devices that pinpoint critical situations or mapping diagrams called up on the Internet. A huge, virtually untapped market, however, awaits those who create advanced applications by linking location information to messaging and multimedia in wireless networks.

Location is more than just where one is. It is also about where one is going and how one gets there. Today there is a new path that accelerates creation of location-enabled services by combining the speed of IT development with the familiarity of the telecom world.

Known as service delivery platforms (SDPs), these platforms open the telecom infrastructure for service creation and flexible access to networks. Creating products via SDP is similar to the open development common in the PC world where applications are rapidly and consistently launched.

The Canvas® LES (Location Enabling Server) is integrated with Telenity's Canvas SDP, both of which operate in the wireless IP arena. The Canvas suite of products shares a common operating environment that supports operations, administration and maintenance functions for a complete, end-to-end integrated system. Its open application programming interfaces (APIs) are the primary tools that ensure rapid creation. Canvas dramatically cuts development time and provides a venue for third-party developers.

"The service delivery architecture and paradigm are critical in bringing new services to market and increasing revenue streams for those services," explains Kevin McCracken, senior manager of GSM/UMTS marketing at Nortel Networks.

"Traditionally, wireless networks have been about one service and that service was providing voice communication between two or multiple people. As higher speed data-capable networks have been deployed, this has enabled enhanced services to be launched into the wireless marketplace. The Canvas platform bridges the gap between an open IT application development environment and the wireless environment in a modular fashion. It allows us to pick a particular function for one customer and they can add to it down the road quite easily. That is a benefit not just for the development of new services up front, but also in the evolution of a customer's business model."

Nortel Networks recently integrated and resold Telenity's Canvas LES and the Canvas® RTMS (Resource Tracking and Management System) with Nortel Networks' Mobile Location Center (MLC). The joint solution was deployed by the Telecommunications Services of Trinidad and Tobago Ltd. (TSTT), a GSM/GPRS network operator.

Open Invitation

The initial entrées of location offerings focused on one-dimensional, find-a-phone applications. As the market

begins to mature, new offerings combine location information with still photos or streaming video, capturing both the look and feel of a site. A primary difference, though, between data-driven products like Canvas LES and early voice-centric applications is that many of the location services are created by third parties, not solely by network operators.

"Like any new service, carriers weren't really sure how location information was going to be used," says Jonathan Spinney, industry manager for location-based services at ESRI Inc. "There was a lot of talk about privacy and carriers began to wonder if they just needed to develop the services themselves, brand them and take care of it all."

"Telenity's platform actually solves a lot of those problems at a technical level. It has capabilities to integrate with the carrier/subscriber portal to manage privacy and permissions. That means networks can begin to open up."

On-call for Product

When a Nortel Networks customer recently approached the company with an urgent request for an advanced location-based platform, Nortel called on its LBS partner, Telenity.

"Our customers ask us to provide them with options to be able to launch end-to-end solutions, including what Nortel provides as well as any partners that we are able to bring to the table," explains McCracken. "What this does from the customer's perspective is minimize the time to market overall for them to analyze the marketplace, assess different vendors and initiate deployment."

"If a wireless service provider has deployed Nortel's Mobile Location Center, we can bring a partner like Telenity to the table and the customer doesn't have to worry about deployment considerations, such as interoperability testing."

An open service-creation platform and increasing acceptance of third-party contributions signal a shift in the rate and approach to product development in the wireless community.

This paradigm is a means for carriers to build up their embedded infrastructure investments and define a path for continuous return on investment.

"Operators do plan to launch some innovative offerings," according to Cap Gemini Ernst & Young in its "Telecom & Media Insights."

"The main idea is to enhance already existing products with features inherent to mobile networks, such as location and storage of information."





The best of all worlds.

Bringing the Internet, Wireless and Wireline together

Up to now, moving across multiple networks was like trying to drink from a fire hose.

Telenity has changed the picture dramatically.

Our commitment to enabling the programmable network includes technology-independent and network-independent services. Portable across the Internet, wireless and wireline networks.

Telenity's Canvas® suite of integrated platforms, applications and services showcase multimodal service creation, content provisioning and deployment of scalable services—accessed from any place, on any network, at any time.

Services are up in days or weeks—without compromise of network security, service integrity or subscriber control.

Canvas gives network operators vast new freedom to quickly launch new services.

Create your own services. Work with service and content developers. Even resell services. The choice is yours.

See us about next generation services now.

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Service Delivery...Content Management...Location and Presence...Messaging...Value Added Services