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## Artilium White Paper

### Fragmentation, Convergence and Unified Communications

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**Fragmentation, Convergence and Unified Communications:  
Shifting to the Consumer-Centric Model and Opportunities for  
Fixed, Mobile and Virtual Network Operators and Managed Services Providers**

**Communication is the Killer App**

*The telecommunications industry may like to assume users are passive consumers – willing to believe in the promise of convergence and settle for a confusing mix of fragmented and few-sizes-fits-all services. But in reality, these consumers are prosumers, mobile professionals who are sophisticated purchasers of goods and services. This segment demands a more unified and integrated communications experience that allows them to connect and collaborate with others on their terms.*

On the move, in the office and at home, prosumers want their activities to dictate the technology they use – not the other way around. This new breed of professional user wants to have access to their full range of applications and services all the time and in a way that offers the best possible user experience. And they want to do this without thinking about the underlying technology.

Beyond individuals, organizations also require access to truly converged communications services. Indeed, better collaboration, both inside the organization and with business partners, is a determinant of competitiveness and communications technology has considerable transformative potential. This is the key message of the breakthrough business book, *The Only Sustainable Edge: Why Business Strategy Depends on Productive Friction and Dynamic Specialization*. It argues the richest opportunities for innovation lie at the edges - the edges of business processes, the edges of organizations, the edges of emerging economies in developing countries, and the edges of new generations of tech savvy consumers and workers.

Organizations all over the world gain more strategic advantage by positioning themselves at the center of this new knowledge creation, and by creating the networks that allow them to connect with the edges in emerging markets, where creative friction can yield breakthrough ideas and innovation. To maintain their competitive edge and tap into innovation resources in their workforce it will be paramount for organizations to access a rich communications services portfolio and seamlessly shift between fixed, mobile and IP networks. Ultimately, it's this capability that will separate the leaders from the laggards.

The rise of empowered users and connected companies turns up the pressure on network operators and virtual network operators (VNOs) to put the user at the center and the technology in the background. That future is now. Customers must be able to shift seamlessly from one network to another and network providers must be able to remove the complexity and deploy converged applications and services across multiple networks.



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## Consumer-Centric Approach

However, empowered prosumers are not the only customer segment resolved to take charge of their communications experiences. Users who are passionate about belonging to a particular group or share an affinity for a cause increasingly demand communications services tailored to their individual lifestyles and life stages.

Sensing this business opportunity, many new players – from media and cable companies to consumer brands and banks - are scrambling to become virtual network operators (VNOs) and mobile virtual network operators (MVNOs). These nimble newcomers range from mobile operators targeting the elderly with 24-hour operator assistance to help subscribers retrieve phone numbers from their contacts, check voicemail and generally assist users in making calls; to sports teams determined to cash in on the loyalty of their fan base and sweeten the offer with relevant mobile entertainment content and special broadband broadcast of game highlights.

JupiterResearch, for example, counts dozens of MVNOs in the North American market alone and has identified five main categories.

- Prepaid or low-cost providers. These MVNOs (such as Tracfone) emphasize price and aim at a broad, mainstream audience with largely voice-centric offerings.
- Ethnic/immigrant MVNOs. MVNOs like TuYo and Movida target the Hispanic market. Opportunities also exist to target other immigrant groups with native language services and cheap home-country calling plans.
- Carrier/ISP bundle offerings. MVNOs like Qwest Wireless and MVNO efforts from major US cable operators—such as Comcast, Cox, Time Warner, and Advance Newhouse—make a service bundle including broadband, wireline voice, and potentially video.
- Youth content and value plays. The most prominent current MVNOs, Boost, Virgin, and Amp'd, target younger consumers with value propositions combining pricing and premium features.
- Media brands. MVNOs such as Disney make established media companies' brands and content the center of their value propositions.

In Europe, the ranks of MVNOs have swelled beyond 100 – and continue to grow. A more recent addition shows just how targeted the MVNOs can become. The cosmetics company Avon is poised to launch an MVNO in Poland within the next few weeks using the infrastructure of PTK Centertel, the operator of the Orange mobile network. It will address its offer chiefly to clients and consultants who sell Avon products.

Moving forward, it's the ability of the MVNO to engage with the customer – backed up by the proper platforms to enable the bundling, charging and delivering of these content services – that is likely to be a key factor separating the market leaders from the also-rans.

To be sure, targeted MVNOs and VNOs fill an important and lucrative gap in the marketplace. These specialist providers build their bottom line on differentiation and can, by definition,



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target the groups which are not targeted by the operators. At the same time they boost the bottom line of the operators who allow them to piggyback their networks.

What's more, new business thinking recognizes there is a huge and lucrative opportunity in mass customization. Rather than target mass markets with one-size-fits-all products and services, clever companies are reaping the benefits of marketing more tailored solutions to tight-knit groups of individuals. This approach – often dubbed the long tail – preaches that acknowledging customer diversity pays dividends. To tap the lucrative *long tail* of niche customer segments and deliver a wide variety of differentiated communications offerings, VNOs /MVNOs must be able to create new brands and differentiated offerings rapidly, securely and with real-time management. As these providers are often businesses first and telecoms companies second, they must also reach out to solutions that cut through complexity and make use of existing networks and infrastructure. It is hardly the task of a business to invest in, let alone fully understand, the networks at its disposal.

Put simply, the future success of this new breed of MVNOs/VNOs depends upon their ability to offer the communications services portfolio that fits their demographic and allows them to target a well-defined market segment. Having insufficient services or failing to address the holistic needs of their customers will prompt underserved users to vote with their feet.

### **Replacing Confusion with Control**

Proprietary network technology. Rigid legacy systems. Rapid market fragmentation. Increased customer demand for integrated services on an individual basis. These are the complex issues facing VNOs/MVNO, managed service providers, and operators today.

A viable solution to this problem must therefore integrate disparate fixed, mobile and IP networks, and enable the rapid deployment of converged services and applications. At first glance, the simpler solution might appear to be the implementation of an all-IP network based on an IP Multimedia Subsystem (IMS) architecture.

IMS, the new next-gen applications delivery architecture claims to allow operators to deliver a slew of new services. But don't break out the champagne just yet. While IMS does solve many problems around charging for content and services, it also confronts operators and third-party providers with an avalanche of new business issues.

The introduction of IMS will not only require a radical departure from the more traditional time/distance/volume charging models. It will also require operators to address a confusing myriad of new service scenarios, such as billing customers with multiple identities, using different transport networks for multiple sessions and giving third-party content owners responsibility for billing.

What's more, the business case for IMS deployment remains unclear for many operators, with a lack of commitment from the all-important software developer community among the factors making payback uncertain.

The reality of convergence today centers around the importance of extracting value from existing infrastructure, not completely replacing old systems with new. The prudent approach for providers is to seamlessly integrate networks to deliver unified communications services.



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An example of this is the enabling of prosumers to receive all their emails, voicemail and text/multimedia (SMS/MMS) messages wherever and however they want them.

For VNOs/MVNOs, an integrated network means less capital expenditure and higher returns in the form of increased usage and reduced churn. Having to manage a single infrastructure frees resources to deploy new, differentiated and converged services rapidly with real-time control. More importantly, operators can charge for the range of new services that seamlessly integrate voice and data. Clearly operators see the potential as investment is on the rise to meet the need to deploy next generation services. According to ABI Research, fixed and mobile network operators will have invested a total of \$4 billion in service delivery platform (SDP) capital infrastructure by 2011.

For end-customers, the benefits of deep integration are many and meaningful. Central control of telephone, fax, SMS/MMS and email messages enables customers to access a suite of communications services using an easy-to-use interface. More importantly, they are presented with one clear and concise invoice for a wide array of customized services.

### **Building Capabilities and Competitive Advantage**

For more than a decade now, Artilium has developed innovative solutions which have enabled operators to extend legacy networks to launch new offerings which are delivered across fixed, IP and mobile platforms. Recognized for its engineering talent and unique combination of IT and telecom expertise, Artilium has proven its technology in more than 40 installations, serving tens of millions of end-users in 11 countries.

Put simply, Artilium's leading edge technologies pave the way for a unified communications platform on a global scale, enabling operators and service providers to launch highly monetizable converged services to customers and differentiate their offering on the marketplace. Moreover, Artilium's lead position in the marketplace provides it with a deep understanding of the current and future competitive landscape and the difficulties facing operators and service providers as they seek to out-execute rivals and launch new highly targeted offerings to their demanding customer base.

A singular focus on delivering open, flexible and scalable solutions based on leading industry standards ensures that Artilium's solutions will enable operators and service providers to meet prosumers' demands for unified communications and a new level of access to productivity tools such as Microsoft Exchange as well as presence-aware services allowing prosumers to define their availability and preferences for receiving all communication.

Today, operators and service providers are laying the foundation for offering services such as: 1) centralizing telephone, fax, SMS/MMS and email messages into one place to be accessed via an easy-to-use interface; 2) linking Microsoft Exchange 2007 desktop presence technology with telecoms networks to enable subscribers to define their availability and preference for receiving communications; and 3) integrating voice with business processes to maximize existing networks and provide revenue-generating, differentiating offerings.

Moving forward, Artilium is scaling its suite of solutions for global customers that seek to capitalize on the fixed mobile convergence initiatives in Unified Communications by Microsoft and others.



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Artium's portfolio of open, flexible and modular solutions - Arta VNO Enabler, Arta Convergence Enabler and Arta Business Voice Enabler - drives the ability to launch new services which merge the desktop with networks to increase revenues for operators today and position for future convergence.

Indeed, in working with Microsoft, as well as a broad range of leading technology and telecommunications companies, allows Artium to help companies and their knowledge workers manage their ever-increasing dependency on an ever-growing number of networks and services.

As Marco Iansiti, the David Sarnoff Professor of Business Administration at Harvard Business School and co-author of the best-selling business book, *The Keystone Advantage: What the New Dynamics of Business Ecosystems Mean for Strategy, Innovation, and Sustainability*, observes: it is networks of companies - and those companies that have created platforms in the form of services, tools, or technologies - that enhance the performance of their companies, their customers and their ecosystems of partners, co-creators and end-customers and other stakeholders.

Artium has this keystone advantage and passes these benefits to its customers and their end-users. Put simply, the company has assumed a central function in its ecosystem, empowering prosumers and remote workers while enabling operators and service providers to extend legacy systems, cut costs and reduce churn.

### **A World of Opportunity**

Communication is more than a service; it's a resource that is fundamental to the socio-economic stability of countries, the prosperity of corporations and the well-being of entire populations. Indeed, communications sits at the center of all projects, be they aimed to eradicate poverty and achieve the Millennium Development Goals in emerging markets or in the development of new enterprises in more mature markets.

The advance of mobile communications has been phenomenal, triggering a positive and powerful chain reaction of productivity, sustainable growth and individual empowerment. To date, mobile penetration, as well as the take-up of mobile content, service and applications in emerging markets, has surpassed that of developed countries in North America and Europe - and there is no sign this trend will slow. Recent Pyramid Research documents the shift in growth markets from developed countries to emerging markets. Its top 10 mobile subscriber growth markets for the period 2005-2010 includes some surprises, such as Algeria with 311 percent growth, Peru with 154 percent growth, Cameroon with 144 percent growth and Senegal with 35 percent growth.

Beyond the basics, the booming economies of China, India, Indonesia and the Philippines, along with many more developing countries, are fuelling the red-hot demand for a more sophisticated breed of content and lifestyle services, with personal mobility and access to a unified suite of communications services leading the pack.

The Global Mobile Mindset Audit, a landmark study of nearly 15,000 consumers in 27 countries, shows new power users of technology at all levels. The study revealed that 63.5 percent of people in Latin America want to access the internet on their mobile phones. In Asia that figure is 56.4 percent, in Eastern Europe it's 53.9 percent, in Western Europe it's 30.4 percent



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and in the U.S. it's 22.6 percent. These findings dovetail with other surveys that outline huge opportunities in to extend the value, utility and appeal of communications services.

Put simply, the magnitude of the opportunity is much larger than previously thought and a real source of market promise, beyond the developing world, is the billions of aspiring poor who are joining the market economy for the first time. For enterprises, particularly those in developing countries that may find themselves at an early stage of globalization, the capacity to enter foreign markets and be profitable is more and more dependent on their ability to use communications services to integrate themselves into supply chains with partners around the world. Service providers must deliver businesses reliable and unified access to communications services. Spending time on activities such as tackling complexity in the deployment of new networks results in costly delays, threatening the well-being of these firms. Artilium enables operators and service providers to offer integrated services using existing infrastructure, thus improving the competitive position of businesses in developing countries and throughout the world.

Indeed, Artilium enables operators and service providers to implement breakthrough communications services at breathtaking speed. The benefits to operators and service providers are more than top-line growth; they can leapfrog into products and services that can significantly contribute to their competitiveness. The end result is a virtuous cycle in which the prosumers and companies on the receiving end of these telecommunications innovations can ultimately leapfrog stages of development – and boost productivity to new levels.

Organizations and individuals all over the world gain advantage by positioning themselves at the center of this new knowledge creation, and reward the operators and service providers who create these networks with customer loyalty and high voice and data usage.

Against this backdrop, there is a huge and lucrative opportunity for operators and service providers to transform the existing infrastructure into a rich service platform to meet the demand of prosumers, niche customer segments and businesses for a wide variety of telecommunications services.

In summary: Artilium satisfies this requirement with innovative solutions that reduce complexity, increase choice and drive positive results.

- Mobile: Artilium gives mobile providers control and solutions to launch compelling new converged, real-time offerings.
- Fixed: Artilium offers a range of solutions allowing operators to attract subscribers, extend networks and add more value to voice.
- Managed services: Artilium offers hosted solutions to enable service providers and operators to launch innovative new integrated services which attract customers and increase revenues.

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## About Artilium

Artilium [LSE/AIM: ARTA] delivers innovative software solutions which layer seamlessly over disparate fixed, mobile and IP networks to enable the rapid deployment of converged services and applications.

For more than a decade, Artilium has been recognized for its engineering talent and unique combination of IT and telecom expertise. Artilium has completed more than 40 installations serving tens of millions of end-users in 11 countries.

Customers include Mobile Network Operators (MNOs), Mobile Virtual Network Enablers (MVNEs), Mobile Virtual Network Operators (MVNOs), Fixed and alternative operators, Hosting Providers, Systems Integrators and Managed Service Providers.

Artilium is now expanding its leadership in telecom and unified communications platforms on a global scale.

Artilium is headquartered in London, England with offices in Bruges, Belgium and Seattle in the USA. Artilium plc is a publicly listed company with AIM on the London Stock Exchange (LSE/AIM: ARTA). For more information, please visit: [www.artilium.com](http://www.artilium.com)



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