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Headline	Exploring Realms of Software-defined Architecture
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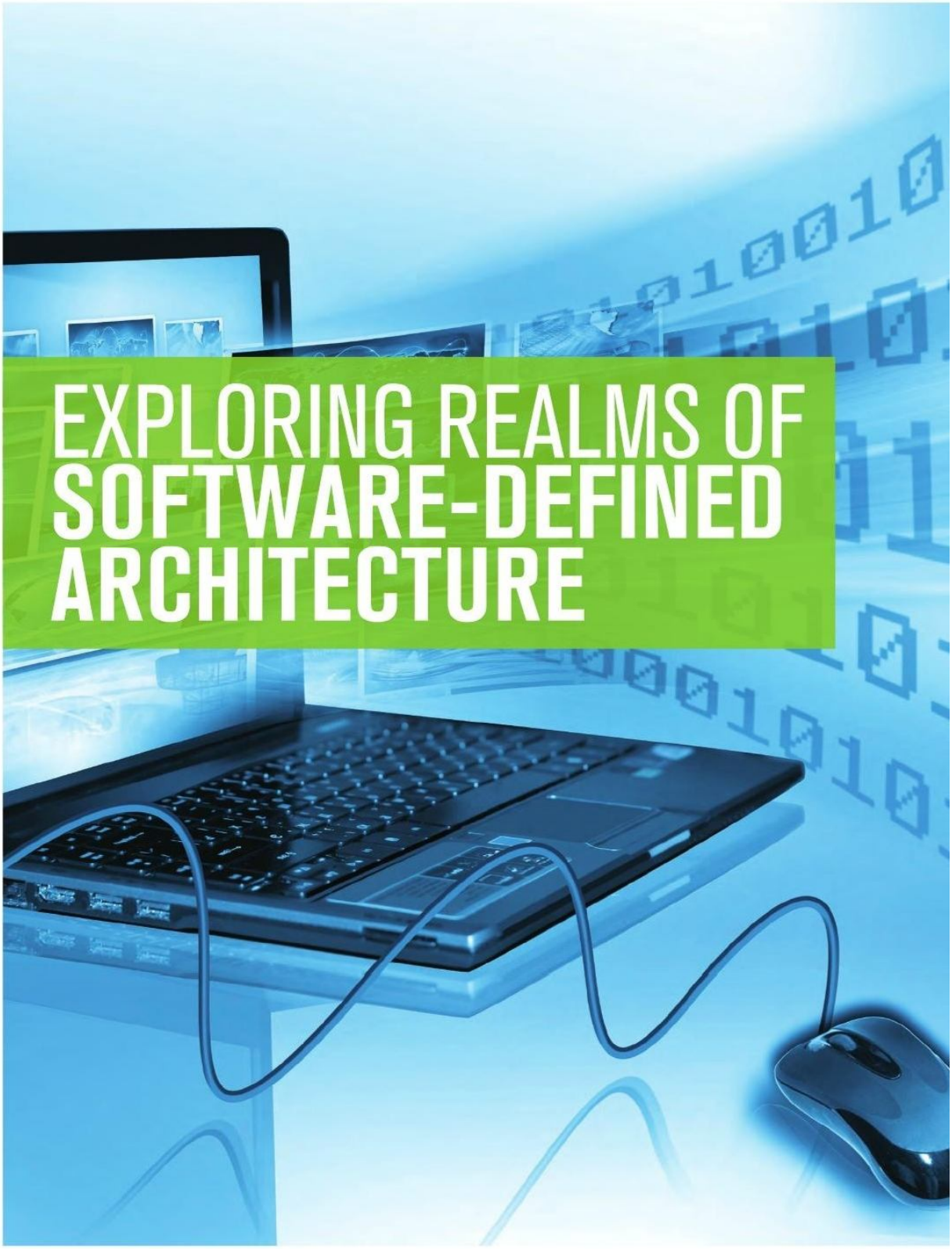

EXPLORING REALMS OF SOFTWARE-DEFINED ARCHITECTURE

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While the whole concept of software-defined 'everything' has started gaining momentum in the Indian market, it is still a buzzword for many enterprises here. Many vendors and analyst firms have predicted that in 2014 there will be increased innovation in 'software-defined networking' (SDN), 'software-defined storage' (SDS) and 'software-defined data centers' (SDDC) with many Indian enterprises choosing to implement software-defined architectures for greater efficiency, flexibility and control.

Today, businesses want to ensure a future-proof network that can be managed holistically and this can be achieved with a software-defined infrastructure. Looking at the changing market dynamics, most enterprises are interested in transforming IT in order to create a more efficient, streamlined infrastructure. Many, whilst not explicitly discussing software-defined technologies, can see that the greater degree of control afforded by software-defined 'everything' is appealing.

According to IDC, as organizations continue to grapple with the fact that the infrastructure investments are not being aligned to the business needs, they are starting to turn to software-defined 'everything' as a way to drive greater efficiency and utilization rates. In addition to this some of the advance/mature IT using organizations have started look at software-defined 'everything' as way to make the infrastructure more flexible and agile to ensure current and future alignment to business.

Moreover, the concepts like SDN and SDS will give way to larger concepts around the SDDC and 'software-defined branch.' Since most of the enterprises have already adopted cloud technology and since the Indian IT market is mature enough to adopt new expertise, the industry experts expect that most of the enterprises will shift focus to invest in these technologies.

CURRENT LEVEL OF AWARENESS

The Indian market is beginning to realize the benefits of moving to full-scale virtualization. The enterprises here are shifting from reacting to changes to becoming more proactive in seeking to embrace mega trends and ultimately towards software-defined 'everything'.

Most customers are familiar with server virtualization, storage and network virtualization - the latter two effectively allowing organizations to manage underlying hardware resources as though they were abstracted pools of computing resources. Recently, industry jargon for doing this changed from virtualization to software- defined – meaning computing resources will be defined, controlled and managed using software, improving utilization and the ability to automate management.

Venu Reddy, Director, IDC Centre for Consultancy and Research, says, "Software-defined 'everything' is at various levels of maturity and acceptance in India. The virtualization of servers and storage are much better understood and adopted to a fair degree while SDN is at a low adoption rate. This is partly due to the fact that infrastructure usage maturity very tactical with many companies still looking at infrastructure (and the related investments) only as an IT tool with no clear alignment to business needs and growth."

"Software-defined 'everything', popularly referred to as SDx, replaced cloud computing among prevalent industry buzzword, and has garnered tremendous momentum over the last year. We, at Symantec, believe that 2014 will be the year wherein companies will begin to understand the implications of this trend, with SDS and SDN leading this charge. And in order to increase overall efficiency, we will see the concept of SDDC, which virtualizes the server, network, and storage levels, gaining more prominence. It will bring in a more efficient and centralized model of utilizing IT resources," adds Huzefa Motiwala, Head-Presales- Information Management India and SAARC, Symantec.

Some of the industry estimates further suggests that the current level of awareness in the country is relatively low with deployments limited to cases where the vendors up-sell their software-defined technology to certain end users who are upgrading their virtualization infrastructure. Nonetheless, awareness of software-defined 'everything' in India is still growing, essentially because the concept is arguably the ultimate manifestation of cloud computing, or the steps that need to be taken to deliver IT-as-a-service.

Praveen Sahai, Vice President – Channels, India & SAARC, EMC, points out, "There is growing awareness and interest among enterprises on SDDCs. While there are some early

Looking at the business agility and cost-effectiveness associated with software-defined technologies, the industry pundits are predicting them to become a major part of the future technology infrastructure investments. Both vendors as well as solution providers are gearing up to address the arising market requirements.

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VENU REDDY
DIRECTOR, IDC CENTRE FOR CONSULTANCY AND RESEARCH

"Software-defined 'everything' is at various levels of maturity and acceptance in India. The virtualization of servers and storage are much better understood and adopted"

HUZEFA MOTIWALA
HEAD-PRESALES-INFORMATION MANAGEMENT INDIA AND SAARC, SYMANTEC

"We believe that 2014 will be the year wherein companies will begin to understand the implications of this trend, with Software-defined Storage and Software-defined Networking leading this charge"

PRAVEEN SAHAI
VICE PRESIDENT – CHANNELS, INDIA & SAARC, EMC

"With its scale-out approach, software defined 'everything' will facilitate enterprise customers to start small and add new servers as performance and capacity needs grow instead of incurring large upfront investments"

adopters, CIOs are still understanding and evaluating the potential in terms of their current IT infrastructure and future requirements. They recognize that software-defined will make even things like storage provisioning simpler. With its scale-out approach, software defined 'everything' will facilitate enterprise customers to start small and add new servers as performance and capacity needs grow instead of incurring large upfront investments."

"A software-defined infrastructure is about decoupling the hardware that executes the data transactions from the software layer that orchestrates them. Rather than individual elements (compute, storage, and networking), infrastructure will be treated as a set of resources required for specific workloads. The goal is about using software to create an underlying infrastructure that can be managed holistically as part of the business. In 2014, we expect to see organizations finally implement software-defined architectures to achieve continued flexibility and control," opines Yogesh Sawant, Director – Partner Sales and Field Alliance Organization, India, Hitachi Data Systems.

> OVER THE NEXT FEW YEARS, 'SOFTWARE-DEFINED EVERYTHING' WILL START TAKING SHAPE WITHIN MANY ORGANIZATIONS WITH TRENDS LEADING THIS CHANGE

Meanwhile, enterprises are looking for compelling use cases and the availability of mature solutions to start implementation. The service providers are leading the evaluation and implementation of software-defined technologies to deliver new value-added services to enterprise customers. Besides, the large scale adoption is expected in the next few years time frame.

MAJOR FORCES BEHIND IT

The emergence of consumerisation, the internet of things and near-ubiquitous dependence on technology in all aspects of our lives will drive adoption of software defined solutions. The underlying technologies under the umbrella of software-defined 'everything' are evolving very

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DIRECTOR – PARTNER SALES AND FIELD ALLIANCE ORGANIZATION, INDIA, HITACHI DATA SYSTEMS

"A software-defined infrastructure is about decoupling the hardware that executes the data transactions from the software layer that orchestrates them"

AMOD RANADE

GENERAL MANAGER – DATA CENTER BUSINESS DEVELOPMENT, SCHNEIDER ELECTRIC IT BUSINESS INDIA

"SDDC as an architecture promises extreme scalability; and planning and deploying an infrastructure to support such IT deployments is quite challenging"

quickly. Therefore, there is a need to align the pace at which applications are rolled out in each element be it network, storage or others.

"The primary driving force behind software-defined technologies is CAPEX and OPEX savings, greater flexibility in infrastructure allocation, and better utilization of the available infrastructure. In addition, service-levels can be improved, new services can be provisioned and managed easily, and enterprise IT services can be consumed on a pay-as-you-grow basis," highlights Mrinmoy Purkayastha, AVP, Alten Calsoft Labs.

As per IDC estimates, the need for better 'bang for the buck' is one of the key drivers for this movement/adoption in the market. In addition to this, as companies grow and change very fast (due to the nature of the market), CIO are turning to software-defined 'everything' as a way to keep the IT nimble and future proof.

Santhosh D'Souza, Director – Systems Engineering, NetApp Marketing & Services India, explains, "Software-defined solutions cut through the performance, availability, and efficiency limits of traditional hardware silos, empowering IT to non-disruptively align infrastructure with changing business and application demands. It helps IT infrastructures achieve scalability, flexibility, and performance. As the cloud continues to enable a new era of IT service delivery, businesses will turn to technologies that enable more flexibility, responsiveness, and competitive advantage. One such movement, software-defined 'everything', will play a prevalent part in the transformation of IT, helping to break down technology barriers, driving increased agility, simplicity, and efficiency."

The other key forces driving these technologies in India are primarily around the need for control, resource optimization, asset consolidation, improving power and cooling, and optimizing TCO. Fundamentally this is all about optimization and agility. As data centers and infrastructures move towards multi-tenant cloud models, there is a real need to be able to spin up assets on demand, under policy control, on a per workload basis.

LONG-TERM BENEFITS

There are multiple benefits enterprises can enjoy by adopting software-defined technologies. The key benefits from a business perspective are significantly better resource optimization, reduced complexity and much greater agility. As a direct consequence, the infrastructure can be orchestrated to deliver more service to more customers in a much more customized form. This gives service providers that ability to offer a wider range of differentiated services to clients, and the ability to move with the times.

"Software-defined technologies are used to improve basic components whether they are storage, networks or security. These technologies are basically a combination of virtualization and other cloud components. From a data center perspective, as the customer demand continues to rise, more software-defined technologies will make their way to the cloud. The growth in software-defined technologies will force businesses and individuals to re-think their approach to their ever-changing IT needs. Moreover, cloud service providers will be the leading buyers of software-defined technologies to meet customer needs in the coming future," says Govind Rammurthy, MD and CEO, eScan.

Additionally, software-defined technologies provide a centralized management layer, thus enabling adequate support to the traditional infrastructure, legacy applications, and cloud services. By centralizing control and federating disparate datacenter hardware on the software layer, organizations can benefit from simplicity of scale, manageability and flexibility leading to a service oriented infrastructure.

Amandeep Dang, Country Manager – Networking, Dell India, states, "SDN decouples decision making layer from hardware and consolidated control in a centralized ecosystem which allows application or orchestration integration via a north bound application integration. With SDN application control of networks virtualization, orchestration or even legacy tasks like network topology convergence, analytics etc. are grossly simplified. While SDN adoption may be in its nascent stage, its benefits like freedom from hardware lock-ins, reduced OPEX, and scalability of infrastructure are undeniable."

"SDDC as an architecture promises extreme scalability; and planning and deploying an infrastructure to support such IT deployments is quite challenging. Schneider Electric is pioneering

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AVP, ALTEN CALSOFT LABS

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COUNTRY MANAGER – NETWORKING, DELL INDIA

"While SDN adoption may be in its nascent stage, its benefits like freedom from hardware lock-ins, reduced OPEX, and scalability of infrastructure are undeniable"

IN 2014, THE INDUSTRY EXPECTS TO SEE ORGANIZATIONS FINALLY IMPLEMENT SOFTWARE-DEFINED ARCHITECTURES TO ACHIEVE CONTINUED FLEXIBILITY AND CONTROL

the PraFab Data Center architectures and Integrated Data Center solutions and services. These solutions and services make it easy to quickly deploy/retrofit/expand capacity to support the extreme scalability that architectures like SDDC can award," adds Amod Ranade, General Manager – Data Center Business Development, Schneider Electric IT Business India.

It's also important to note that software-defined technologies offer significant business benefits on both sides of ledger. By virtualizing the infrastructure, enterprises can realize the benefits of the cloud, which include improved time-to-new services/applications deployment; unprecedented programmability allowing enterprises to tailor their infrastructure to the needs of their organizations; virtualization enables resource utilization to be optimized as stranded capacity, which can be minimized and used as an elastic resource; and automation enables operations to be streamlined, reducing configuration and provisioning times, manual errors, and overall OPEX.

"When we separate the storage hardware from the software that manages the storage infrastructure, software-defined storage enables enterprises to purchase heterogeneous storage hardware without having to worry as much about issues such as interoperability, under- or over-utilization of specific storage resources, and manual oversight of storage resources. It also provides functionality such as deduplication, replication, thin provisioning, snapshots and other backup and restore capabilities across a wide range of server hardware components," asserts Sawant.

Furthermore, Motiwala is of the view that as part of the SDDC, SDS will also be regarded as a key development in the storage space, allowing increased flexibility in how enterprises can store information. SDS has the potential to spell the end of over-provisioning, as storage can be allocated more accurately from a wider pool. It also frees organizations from the cost overheads associated with proprietary storage.

PROPAGATING THE RIGHT MESSAGE

Currently, all the leading technology vendors as well as service providers in the country are putting in a lot of efforts towards propagating these benefits amongst the enterprises so that the market witnesses maximum deployment of software-defined technologies.

"EMC was early to recognize Software Defined Infrastructure as the future and invested ahead

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of the curve which included the acquisition of VMWare. We then extended the software defined concept to Storage and were the first in the industry with the recently launched ViPR platform that provides the virtualization, automation, and management capabilities necessary to create a single pool of virtual storage. This is done without compromising the compelling characteristics of the underlying storage array (VNX, VMAX, Isilon). Storage administrators can then create virtual storage arrays that they can manage by automated policies," mentions Sahai.

Similarly, Schneider Electric has put together the complete set of tools for making it easy to design, deploy, operate and service data center infrastructure. Innovations like Prefabrication/ InfraStruXure architecture/Struxureware for data centers help bring infrastructure layer on the virtual plane. Software suites like Struxureware for data centers are designed to leverage virtualization, and can be deployed on a virtual platform. The company's expertise, collaboration and partnerships, help integrate the physical infrastructure of data centers with the virtual infrastructure that powers SDDC.

D'Souza is quick to point out, "NetApp has been working on technology innovation to simplify, virtualize and automate IT architecture. NetApp works closely with technology partners in the Computer, Networking and Application space to ensure that our technology innovations align with theirs, and together deliver on the promise of a well-defined IT infrastructure. NetApp also is part of Standards bodies and Open Source communities, contributing code and formulating standards that are vital in creating an actionable roadmap for Software Defined solutions across heterogeneous technology products."

According to Purkayastha, Calsoft Labs is working activity with major global players in Network Function Virtualization and Software-defined Networking technologies. We are enabling the development and deployment of these solutions with equipment vendors, telecom operators and enterprise customers. As these technologies are evolving, Calsoft Labs believes that there is a need for companies like ours to play a system integrator role to architect and design solutions to support a set of specific enterprise use cases.

HERE LIE THE OPPORTUNITIES

So far, it is very much evident that software-defined technologies present a plethora of opportunities for both technology vendors and service providers.

"SDN-based core switches will help CIOs and their teams to reduce dependency on proprietary OS-based equipment and consequently architect their networks in a more central, flexible and dynamic manner. Our SDN product line, provide our customers its own control/management applications to create user defined networks and brings flexibility so that if they have a problem with brand 'A' equipment, then they can easily migrate to pick hardware brand 'B'. We have Modular switches DG-CS7010 and DC-CS7004 which conforms to the Open Flow Switch Specification (Version 1.0)," points out Bimal Raj, CEO, Smartlink Network Systems.

On the same lines, NetApp's Clustered Data ONTAP is the first storage and data management solution that makes the promise of Software Defined Storage attainable, thus focusing on agility in delivering IT services to application owners while improving operational and IT resource efficiency. NetApp's Storage Virtual Machine (SVM) allows enterprises to deploy native multi-tenant, policy-based storage services via programmable APIs and application integrations.

Ranade further adds, "Struxureware for Data

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SANTHOSH D'SOUZA
DIRECTOR – SYSTEMS ENGINEERING, NETAPP MARKETING & SERVICES INDIA

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BIMAL RAJ
CEO, SMARTLINK NETWORK SYSTEMS

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Center is built for the virtualized environment; and thus enables the integration of the physical infra to the virtual environment of the SDDC. Schneider Electric has invested in web services architecture, that brings together software solutions that were traditionally discrete; and now we are able to create a homogenous solution, that allows data to flow amongst various infra components; and create a database which can be exploited by the various analytics modules available in the Struxureware solution."

Giving Dell's perspective, Dang says, "We believe different customers will have different demands from SDN as a technology. One set will want very basic automation and control with no complexity. The second lot would expect complete green-field full SDN suite with open and API controls; and, the balance requirement will fall in the capacity of SDN overlay to existing IT networking investment as an SDN strategy. Dell is committed and supports all three scenarios. Our approach to SDN encompasses a holistic suite of modular solutions in all domains of networking and infrastructure that deliver the most compelling business benefits without requiring a 'forklift' upgrade or complex integration."

RAMPING UP CHANNEL STRATEGIES

The rising inclination of Indian enterprises towards software-defined 'everything' has also compelled the most of the technology vendors to ramp up their channel strategies around these technologies.

As EMC progresses on it thought leadership journey, it is imperative to align ecosystem partners to be part of this success story. Software-defined technologies will become an integral part of the company's communication strategy with the customers. In fact, it is in the process of updating its partner training programs and related content to be launched soon. In addition to the same, its partner team is also undergoing training to do field trainings on a daily basis.

Toeing the same lines, HDS India is conducting awareness sessions across the regions and making the community aware of these technologies and how they can impact the present as well as the future business. The company is further taking strides in making the partners self-sufficient by scaling their ability to provide services enveloping the said solutions and creating value for their respective customers. Necessary steps of co-creation of bundles, promo activities, and joint CIO roundtables are few of the many initiatives that are being undertaken for the India partners.

Similarly, NetApp's go to market strategy is channel partner intensive and given the strengthened and enhanced relationships that the company shares with its channel partners pan-India, it is confident that it will be able to build the channel battalion across the country to cater to the increasing adoption of software defined technologies. The partner ecosystem will continue to benefit by its programmatic focus on the skills integration to better understand and execute new and existing portfolios to cater to a more demanding IT environment.

"Today, most of the DIGISOL partners realize that acquiring skill sets to handle new technologies and equipments is a key factor for their future success and profitability. Therefore it will boldly help us to reach out to the new market segment with advance technology like SDN and put us in an absolutely leadership position. To achieve this milestone, our partner focus team have a lot of partner skill set development programs to provide customized, comprehensive and vendor neutral training programs running currently for our partners," highlights Raj.

Following the similar approach, Schneider Electric is investing heavily in its partner community. Structured programs focus on skill upgradation, training and incentives. The company believes that in order to make its technologies available to the customers, it is critical to enable partners to advance towards technologies like SDDC.

FINALLY...

By now, the industry estimates clearly suggest that the awareness of software-defined 'everything' across both enterprise and service provider organizations are at high levels. In fact, the adoption of these technologies has started gradually taking center stage in the Indian market. The trade experts predict that from the current siloed implementations, the software-define technologies will become mainstream in the next 3-4 years time frame.