CASE STUDY:
CITIC TELECOM CPC

Mark W.S. Chun, Pepperdine University, 6100 Center Drive Suite 400,
Los Angeles, CA 90045, 310-258-2824, Mark.Chun@Pepperdine.Edu

It was January 2013 in Hong Kong, and Stephen Ho, the President of CITIC Telecom CPC, recently returned from the Pacific Telecommunications Council conference where he discussed ways in which cloud computing has transformed industries. As the executive in charge of CITIC Telecom CPC, he wondered how he could grow his business and deliver a clear message to his customers as to how cloud computing could transform their operations.

The Hong Kong IT Telecommunications Industry. The Information Technology (IT) telecommunications industry in the Asia Pacific region has been through a number of highs and lows in the past 20 years, including most recently the global financial collapse of 2009. After experiencing a one of the world's worst global recession in 2009, Hong Kong experienced a 3.5% economic contraction. In 2010 & 2011 the economy grew at a robust 7.2%. The region's economy began recovering, many enterprises have again opened their wallets to increase investments in IT infrastructure and human resources. However, in 2012, Hong Kong's economy experienced a muted growth of about 3%.

The growth of the economy had resulted in an increasing demand for different kinds of talent. Statistics show that in a year-on-year comparison, private sector vacancies were about 20% in 2012. However, there were several industries that had experienced increased employment growth, including the technology and communications industry (6%), construction (13.5%), hospitality (9.6%), healthcare (5.7%), and real estate (4.7%). On the other hand, employment decreased in several industries, including manufacturing (-4.3%), wholesale (-1.6%), and import/export trade (-1.6%).

As the recovering economy had loosened its purse string on enterprise expense accounts and barriers to adopt cloud computing continued to fall, enterprises started to invest in in-house IT talent training, focused on improving staff understanding of the cloud. Cloud service providers have also taken advantage of the opportunity by recruiting more IT staff with cloud computing expertise to deliver the highest standards of cloud services. Entering 2013, cloud computing emerged as a new way for companies to boost performance and productivity in the warming financial environment. As storage, services, and applications are moved to the cloud, corporations are required to find new ways of delivering and managing IT services. To keep aligned with development, a fresh wave of IT specialists was needed not just in the IT industry, but across a number of industries attempting to lavage the cloud.

Cloud Computing. Cloud computing is considered to be one of the most significant recent developments that has affected the telecommunications industry worldwide. Cloud computing is generally understood as the use of computing resources (both hardware and software) that are delivered as a service over a network (typically the Internet). The cloud-shaped symbol was used as an abstraction that represented the complex infrastructure it contains in the system

diagrams. Cloud computing uses remote services to host and manage user's data, software, and computation.

In most firms where software is used, employees are provided access to databases and application software. Cloud providers manage the infrastructure and platforms on which the applications run. Software as a Service (SaaS) is commonly referred to as "on-demand software" and is usually priced on a pay-per-use basis. SaaS providers generally price applications using a subscription fee.

Several proponents of this model claim that the SaaS provides businesses the opportunity to reduce IT operational costs by outsourcing hardware and software maintenance and support to the cloud provider. This enables the business to reallocate IT operations costs away from hardware/software spending and personnel expenses, towards meeting other IT goals. In addition, with applications hosted centrally, updates can be released without the need for users to install new software. One drawback of SaaS is that the users' data are stored on the cloud provider's server. As a result, there could be unauthorized access to the data.

End users typically access cloud-based applications through web browsers, a light-weight desktop, or a mobile app, while the business software and user's data are typically stored on servers at a remote location. Proponents for cloud computing claim that it allows firms to get their applications up and running faster, with improved manageability and less maintenance. It also enables IT to more rapidly adjust resources to meet fluctuating and unpredictable business demand. Cloud computing has been a popular solution for companies as it typically relies on sharing of resources to achieve coherence and economies of scale. At the foundation of cloud computing is the broader concept of converged infrastructure and shared services. It offers the following capabilities:

- **Agility** – Empowering users to deploy pre-configured services or custom-built services with the click of a button through a user-friendly self-service portal.
- **Control** – Maintain security and control over a multi-tenant environment with policy-based user controls.
- **Cost** – Reduce costs by efficiently delivering and managing resources to internal organizations to increase consolidation and simplify management.
- **Portability** – it provides a more compatible model for virtual computing resources pool management and security that allows complete application portability across the cloud.

CITIC Telecom CPC. The CITIC Telecom International Holdings Limited was established in 1997 and publicly listed on the Main Board of the Hong Kong Stock Exchange. Formerly known as CITIC 1616 Holdings Limited, the company was one of Asia Pacific's leading telecommunications service providers offering carrier-grade platforms, intelligent network management, high-quality customer services and advanced technologies. CITIC provided a diverse range of advanced offerings to telecommunications carriers, mobile network operators and Internet service providers globally, including voice services, mobile SMS, value-added services (e.g., signaling transit, prepaid roaming and VAS applications) and other innovative data and telecommunications services.

CITIC Telecom International CPC Limited (CITIC Telecom CPC), formerly known as CPCNet Hong Kong Limited, was a wholly owned subsidiary of CITIC Telecom International Holdings Limited. CITIC Telecom CPC was originally founded in 1994 and based in Quarry Bay, Hong Kong as CPCNet Hong Kong. On December 17, 2007, CPCNet Hong Kong Limited officially began operations as a subsidiary of CITIC, offering a diverse portfolio of telecommunications and security solutions to clients across Asia. The company has additional offices in Taipei, Taiwan; Tokyo, Japan, and Gateway East, Singapore.

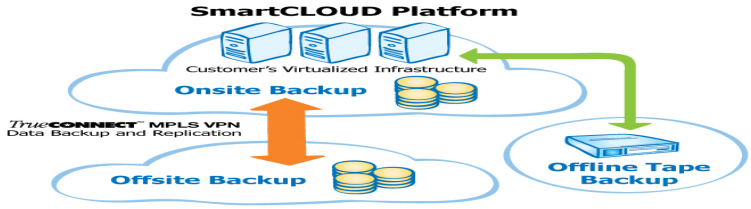
CITIC Telecom CPC established itself as a communications and security solutions partner with multiple branches across the Asia Pacific region. CITIC Telecom CPC became the first VPN service provider in Hong Kong to receive 3 ISO certificates: ISO 9001 – Quality Management System, ISO 27001 – Information Security Management System and ISO 20000 – Information Technology Service Management System. Its professional service teams also turn the corporate value into real benefits to customers through hotline, email and onsite support. Drawing on its heritage as an industry visionary and catering to faster growing market segments, as well as leading-edge technologies, CITIC Telecom CPC offered its customers a comprehensive range of innovative products and services, including: **TrueCONNECT** - an advanced MPLS VPN service which employs state-of-the-art fully meshed network, **TrustCSI** - an integrated suite of information security solutions, and **SmartCLOUD** - a full-fledged cloud computing solutions which can complement the company's managed network and managed security solutions.

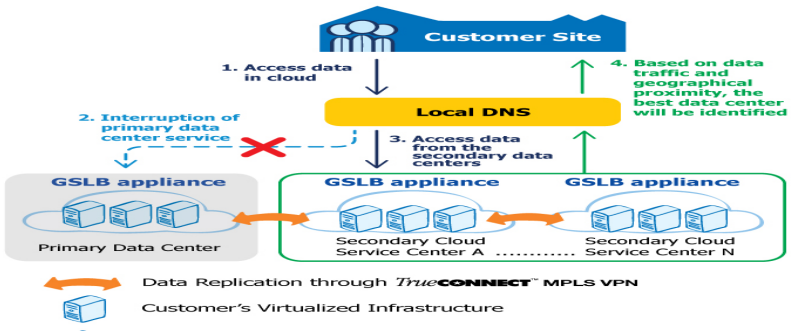
TrueCONNECT. TrueCONNECT was a multi-protocol label switching IP VPN network and Global CONNECT, which provided trans-border data network services. The services included information security, such as connectivity, email scanning, colocation hosting, dedicated hosting, shared hosting, and Internet roaming, and managed roaming. The product also offered firms a powerful way to achieve seamless, secure and reliable networking. This managed VPN services uses MPLS technology to securely and efficiently link multiple points of presence for various business critical applications – such as data, voice, and video. Multiple Classes-of-Services (CoS) prioritize traffic, with guaranteed Quality-of-Service (QoS). TrueCONNECT is IPv6 ready, using hybrid dual-stack technology to enable IPv4 and IPv6 to run concurrently and also to support applications that need contiguous IP addresses.

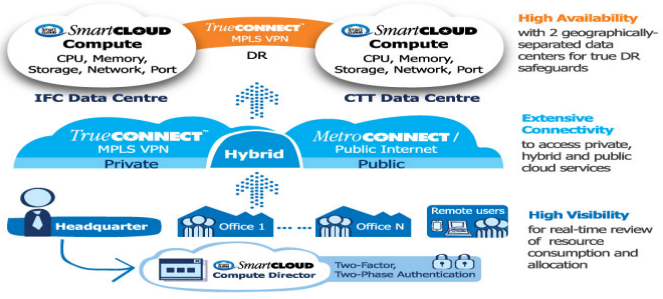
CITIC Telecom CPC was Hong Kong's first VPN service provider to be "triple certified" for ISO9001 (Quality Management), ISO 20000 (Information Technology Service Management), and ISO 27001 (Information Security Management). Finally, CITIC Telecom CPC provided managed services, such as *ManagedCONNECT*, an online gateway to manage various networks; *M@ilCONNECT*, an email hosting solution that provided new email services, and managed unified threat management gateway.

TrusCSI. TrustCSI managed security suite delivered total protection to enterprises. A dedicated 24x7 team of certified security experts and advanced Security Operations Centers (SOCs) ensure businesses to reliably meet specific security needs with minimal trouble and cost. Comprehensive attach signatures databases are always kept up to date. Powerful Security Information and Event Management (SIEM) correlation and classification technology provides real-time alerts for immediate corrective action. TrustCSI vigilantly protects companies against current and emerging threats, with extensive, turnkey, and affordable security.

SmartCloud. SmartCLOUD solutions delivered unprecedented flexibility and scalability to enable all enterprises to rapidly deploy any scale of service with little delay or administrative overhead. Customers could dynamically allocate key resources to address business tasks, including on-the-fly allocation of processing power, memory, and storage. Everything is protected with highly secure connectivity to isolate applications and to ensure data integrity. SmartCLOUD solutions also seamlessly interoperate with the company's other products and services. Ideal for extending enterprise infrastructure, they leverage CTIC Telecom CPC's State-of-the-art non-stop highly available Internet Data Centers.



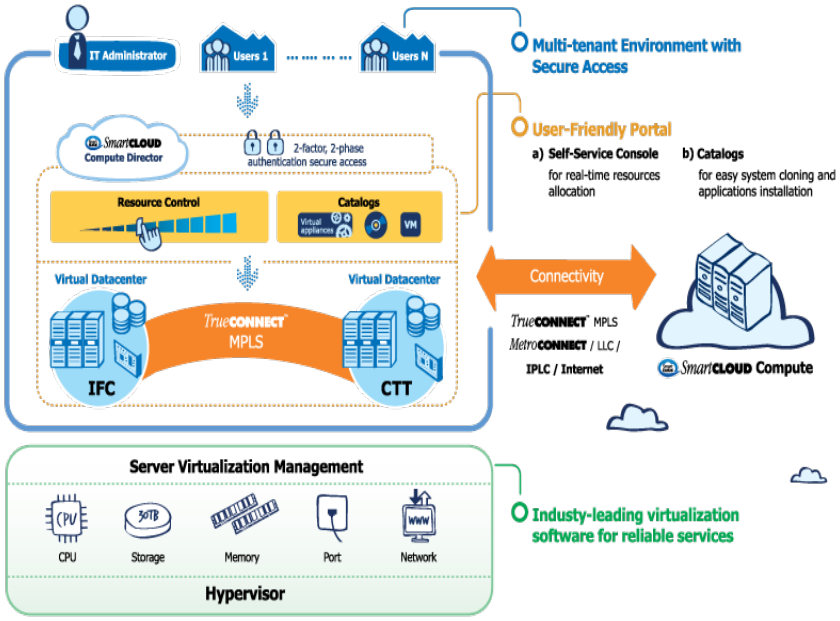




SmartCLOUD Compute Director enabled end-users to command their deployments. It provided data on the consumption level of subscribed services for immediate insight and future planning clarity. Through the SmartCLOUD Compute Director online portal enable users to dynamically adjust resources anywhere, anytime, instantly reflecting the changes in the virtual environment.

*SmartCLOUD Compute Directo*ry enabled customers to manage secure private clouds, transforming the way IT delivered and managed infrastructure services and the way users accessed

and consumed these services.

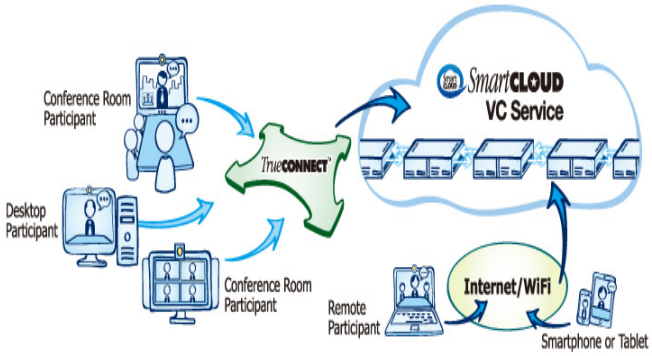


CITIC Telecom CPC's SmartCLOUD M@il provided a powerful collaboration client that not only easily connected everyone within the corporation, but also stored and synched email, calendar, contacts, files and documents in the cloud. It provided a seamless compatibility with various systems and devices, including Windows, Mac and Linux OS, and the latest smartphones and mobile devices. SmartCLOUD M@il was a fully-hosted solution that could be rapidly deployed and required no ongoing administration overhead. This solution provided a pragmatic tool to help & make communicating & sharing information easier. SmartCLOUD M@ail also provided the following functions:

- Complete range of enterprise collaboration tools (eg., email, calendaring, document sharing).
- Real-time synchronization of mail, contacts, and calendars on all major mobile devices, industry-standard protocols, and desktop operating systems.
- Enterprise-grade security and seamless compatibility with major messaging and calendaring systems.
- Turnkey end-to-end mobile security including remote shutdown and data wipe
- User-friendly Web interface supports native languages (English, Traditional and Simplified Chinese)
- Built-in anti-virus and anti-spam protection
- Highly granular CoS and security options can be fine-tuned for each user, department, and even domain
- Hosted with 99.9% high availability on their true disaster recovery sites
- Software-as-a-Service solution requires no additional hardware

- Extending the client's meeting from conference room to personal devices
- HD quality video Conference-as-a-Service

SmartCLOUD VC Service was a regional cloud-based managed video conferencing solution that offered high quality and multimedia integration. With no upfront payments or expensive equipment, telepresence-quality multi-point video conferencing could be provided anytime and anywhere. Internal or external meetings, discussions, trainings, product demonstrations and presentations were easily accessible around the globe. Employees could use this function at their desktop, in a conference room, or on the road with laptop, smartphone or tablet. There was potential to reduce traveling costs and increase productivity among employees.



Participants could connect to the SmartCLOUD VC Service inside the office through the secure VPN network – TrueCONNECT, or from outside through the Internet. The highly secured SmartCLOUD structure ensured that video conference content and company information were secure.

Conclusions: What's next? As Stephen sat in his office overlooking the skyline of downtown Hong Kong, he realized that his company could have a profound impact for how cloud computing could impact numerous industries. He wanted to grow his business and to better educate his customers about the impacts that cloud computing could have on their business operations, but he wondered how to proceed.