ENTERPRISE DATA SERVICES:
SHAPING THE FUTURE OF CONTENT AND
MEDIA, AND GAMING INDUSTRIES

F R O S T & S U L L I V A N

A Market Insight by Frost & Sullivan
in collaboration with SingTel

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Introduction

Over the last few years, there has been a fundamental shift in the way organisations store, process and distribute data. By optimizing their networks through faster network connections and leveraging interconnected platforms, organisations are able to streamline their processes and optimize their resources. A range of innovative enterprise data services offered by service providers serves as a catalyst driving this shift.

This white paper discusses the current and future requirements for enterprise data services, also known as Wide Area Network (WAN) services, by global content and media, and gaming industries. It outlines Frost & Sullivan’s recommendations on the evaluation criteria for selecting a service provider to meet these requirements. It also examines the role of SingTel as a service provider, by evaluating its value proposition and relevance to the organisations in these two industries. These industries have been selected because of their immense requirements for data storage, processing and distribution.

Evolution of the Content and Media, and Gaming Landscape

The ecosystem of the content and media, and gaming industries has evolved significantly over the last decade. Driven by a demand for real-time consumption by consumers, organisations have had to adapt their business models to incorporate more elements of connectivity offerings from service providers. This has led to organisations in these two industries leveraging optimized, high-speed and scalable portfolio of services to effectively store, process and distribute data.
The following table provides an overview of the respective industries.

**Figure 1: A snapshot of the Content and Media, and Gaming industries**

### Content and Media Industry

**Market Size**  
USD 1.6 trillion (2013), expected to reach 2.4 trillion (2018).

**Prominence**  
The United States has the largest market share at slightly more than 30% (owing to a more established market and strong understanding of the processes).

**Growth**  
Strong double digit growth in India, China, Korea and Indonesia.

### Gaming Industry

**Market Size**  
USD 69 billion (2013), expected to reach USD 85 billion (2018).

**Prominence**  
Regions with the largest market share are Asia-Pacific, followed closely by North America and Europe.

**Growth**  
The figure indicates the regions with the fastest growth, which are mostly emerging markets in Asia-Pacific and Latin America.

### High Growth Gaming Markets

Source: Frost & Sullivan
Requirements of Content and Media, and Gaming Providers

The following table lists the current connectivity requirements from content and media, and gaming providers split into different stages; storage, processing and distribution.

Table 1: Requirements of Content and Media, and Gaming Providers

<table>
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<tr>
<th>STAGE</th>
<th>CONTENT AND MEDIA REQUIREMENTS</th>
<th>GAMING REQUIREMENTS</th>
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<tbody>
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<td>Storage</td>
<td>• Low cost storage solutions for media</td>
<td>• Low cost storage solutions for content library</td>
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<td></td>
<td>• Disaster recovery and business continuity services</td>
<td>• Caching of content closer to high frequency users</td>
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<td>• Digital archiving solutions</td>
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<td>Processing</td>
<td>• Collaborative content production capabilities</td>
<td>• Strong workflow management</td>
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<td>• Strong workflow management</td>
<td>• Utility-based model for data processing given highly variable demand trends</td>
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<td>• Converting analogue content to digital for digital archiving</td>
<td>• High performance computing solutions for MMORPGs (Massively Multiplayer Online Role-</td>
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<td>• Utility-based model for content processing and transcoding</td>
<td>playing Games), especially in the US, Australia and Greater China</td>
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<td>• Simple distribution of content library</td>
<td>• Solid global network infrastructure capable of offering large bandwidths with low</td>
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<td>• Content delivery network capabilities</td>
<td>latency</td>
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<td>• Fast on-demand content across devices</td>
<td>• Real-time, collaborative distribution</td>
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<td></td>
<td>• Live programming/streaming</td>
<td>• Online distribution platforms</td>
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<td>• WAN optimization</td>
<td>• WAN optimization</td>
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</table>

Source: Frost & Sullivan

Connectivity plays a major role in the processing and distribution stages, while cloud services are essential for storage. Connectivity is also required for a seamless transition from stage to stage. Some of the key important attributes of WAN optimization required by organizations are as follows: web caching, bandwidth management, latency optimization and simultaneous connections.

While the above requirements have been catered to by service providers, there are still certain challenges faced by organisations in content and media, and gaming industries. These challenges will need to be addressed, before the industries can evolve further.
### Key Market Challenges

The following figure lists the key challenges in enterprise data services highlighted by organisations in the content and media, and gaming industries.

**Figure 2: Key challenges in enterprise data services**

<table>
<thead>
<tr>
<th><strong>Connectivity</strong></th>
<th>Unstable and weak connectivity across developing countries is a barrier for the distribution of data to customers in these regions. Moreover, the existing infrastructure is also not conducive for storage or processing.</th>
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</thead>
<tbody>
<tr>
<td><strong>Pricing</strong></td>
<td>The costs of data transfers per GB need to be more competitive. This is one of the most significant challenges currently facing enterprises in these industries.</td>
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<tr>
<td><strong>Customization</strong></td>
<td>While data communications services are much more customized than a few years ago, it still has a long way to go. Service providers should provide a unique package of simultaneous connections, customised bandwidth, storage and processing services for enterprises in the content and media, and gaming industries.</td>
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<tr>
<td><strong>Consistency</strong></td>
<td>With large amounts of data constantly transmitted, a key challenge for enterprises lies in maintaining consistency when distributing and storing data with a variety of service providers globally.</td>
</tr>
<tr>
<td><strong>Regulations</strong></td>
<td>Different countries have different regulations on media and gaming and it is necessary to adhere to local compliance requirements. Hence, localisation of content becomes necessary. Digital rights management is also a key aspect of compliance to regulatory requirements.</td>
</tr>
</tbody>
</table>

Organisations perceive that not much effort will be required for service providers to work out these issues; it is just a question of time. To understand the necessity of dealing with these challenges, it is important to explore the requirements of the content and media, and gaming providers in the future.

Source: Frost & Sullivan
Requirements Shaping the Future

To keep ahead of the rapid pace of changes in these industries, it is important to understand the ecosystem and requirements shaping the future of these industries. The following figure shows the expected ecosystem for the content and media, and gaming industries in the next three to five years:

Figure 3: Requirements shaping the future

Drawing from this future ecosystem, service providers should mould their offerings in line with the key requirements of organizations in these two industries. Some of the key requirements, as stated from key industry stakeholders, are as follows:

- More simultaneous connections with high bandwidth and low latency to provide bandwidth management and connectivity customisation.
- Sequence caching services, preferably on the cloud, to enable faster performance for customers. An end-to-end service provider with global data centre coverage to ensure consistency. This also ensures that storage, processing and distribution can be handled by the same service provider.
- Alternatively, a network provider would need to have strategic relationships with data centre providers to provide a seamless connectivity experience.
- Better pricing for cloud storage solutions, in terms of bundled offerings when enterprises take up server space in multiple countries.

An Asian gaming provider, headquartered in Japan
Selecting the Right Service Provider

There are numerous service providers engaged in the enterprise data services landscape globally. They fall under two groups – providers that focus on pure connectivity and those that provide a range of managed services. While there are advantages to both, most feedback from gaming and media providers suggests a preference for managed service providers.

The following figure shows the top attributes considered by organisations in the content and media, and gaming industries in selecting a service provider.

*Figure 4: Top attributes considered while selecting a service provider*

- Pricing needs to be much lower, for bandwidth, speed and cloud storage services.
- Security in storage needs to be ensured, especially in emerging countries such as India, Indonesia and Malaysia.
- Cloud analytics will be required across all processes – especially on storage and distribution.
- Speeds of data connections across Asia-Pacific need to be improved for better streaming.

**A global media provider, headquartered in the US**

- Service providers need to have better product knowledge to provide offerings specific for the content and media, and gaming industries.
- Innovation is more obvious with third party service providers as opposed to telcos. It is important for telcos to build up their services.
- Pricing for data transfer has to be very low.
- Models for data processing need to be more advanced and more cost competitive.
- A focus on WAN optimization for better compression to reduce network traffic.

**A global content provider, headquartered in the US**
**Cost:** Organisations view this as the most important attribute when selecting a service provider for enterprise data services. For content and media providers, they stated that for the ideal cost per GB of transferred data should be priced at less than one cent. Gaming providers maintain that while the cost of data transfer/distribution is important, the price of storage is far more relevant due to the enormous data stored, especially for high definition gaming.

**Connectivity:** The range of connectivity offerings, its efficacy and customisation/relevance is the next attribute important for organisations. Connectivity should cover wide geographic areas, preferably across the globe or across target markets. Self-owned points of presence allow the service providers to better manage Service Level Agreements (SLAs). WAN optimization is an important aspect of connectivity given the distances across which data has to traverse, as well as increasingly pervasive applications. It can help overcome challenges of massive data volume, limited bandwidth and high latency that slow down performance.

**Consistency:** Consistency is an essential attribute that all service providers must deliver in their services. From an organisation’s viewpoint, it is important to deliver a consistent level of service efficiency across storage, processing and distribution streams. Distribution should be seamless and not congested, even if it involves a variety of service providers across different regions. It is also crucial to have a 99.99% uptime, as access to the content from these industries is in required at all time.

**End-to-End Service Provider:** It is preferable to select a service provider that offers a range of services and managed services capabilities as opposed to a pure enterprise data services provider. Organisations are increasingly opting for an integrated service provider that provides “one neck to choke”, rather than different offerings from various providers. The key reasons for this are to ensure consistency in service through a single SLA (service level agreement), and to drive the total cost down through service bundling.

Other attributes such as partnerships, simple management, regional coverage and support services are also important to organisations, although at a much less extent than these three characteristics. Among all the service providers in Asia-Pacific, SingTel is one of the key service providers that embody these qualities.

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“One neck to choke” is an expression used in business to describe the advantage of purchasing goods or integrated services from a single vendor.
SingTel’s Value Proposition

SingTel is one of the leading enterprise data services and managed services providers in this region, a reputation built on its end-to-end service capabilities and high service levels to meet the unique needs of its customers across industries and verticals. To provide for the requirements of content and media, and gaming organisations, SingTel has specific service offerings as illustrated below:

**Figure 5: SingTel’s value proposition across the three stages**

1. **Storage**
   - Co-location
   - Managed Hosting
   - Virtual Servers
   - Storage as a Service

2. **Processing**
   - Managed Hosting
   - Virtual Servers
   - Compute as a Service
   - Media Delivery Platform (MDP) - processing and encoding of video content

3. **Distribution**
   - WAN Optimization
   - Globally connected network
   - Managed Hybrid Network
   - MDP - distribution video content

**An Integrated Value Proposition**

Source: Frost & Sullivan
With a strong network of more than 10 data centres across the Asia-Pacific region, SingTel is able to serve customers in multiple geographies within the region. In addition, its range of data centre services spanning co-location, managed hosting, private cloud-based virtual servers and public cloud-based Storage as a Service provides the required flexibility to carve out solutions to meet the needs of its customers. Furthermore, its ability to offer high availability hosting services allows customers to ensure the highest standards in SLAs, reducing the risk of loss of revenues.

Leveraging secure managed data centres for hosting, private cloud-based virtual servers and cloud-based software and compute resources, allows enterprise customers to choose the optimal solution to meet their specific requirements whilst removing the expense of owning the hardware/software in-house. For example, SingTel offers their customers an online video solution called Media Delivery Platform (MDP) that allows customers to upload, transcode, manage and publish online video globally, all from the comfort of their web browser. It also includes a What-You-See-Is-What-You-Get (WYISWYG) editor with pre-designed templates to easily create video portals ‘out of the box’. More sophisticated customers (who may already have some of these capabilities in-house) can access MDP Application Programming Interfaces (APIs) for additional functionality to enhance their video capabilities to engage internal and external audiences.

SingTel has more than 200 points-of-presence globally, with over 100 of these in the Asia-Pacific region. These are all self-owned and establish SingTel’s global connectivity coverage. Another key aspect of distribution is application acceleration, which improves workload responsiveness over WAN. WAN Bandwidth Optimization ensures bandwidth control, and resources are optimized for simultaneous data transfers. SingTel’s fully managed WAN optimization solutions provide 24X7 WAN and application performance management. The MDP also has distribution capabilities with features supporting live streaming, webcasting, and adaptive bitrate streaming. SingTel’s Managed Hybrid Network as a Service solution offers customers the flexibility to implement hybrid network leveraging on Ethernet or MPLS with Internet access. The service allows organizations to take control of the network through application assurance and visibility, dynamic path routing between private and public networks, and managed VPN capabilities.
Targeted solutions for content and media, gaming organizations

Based on discussions with organisations in these industries, below are key offerings that will be suitable:

- **Media Delivery Platform** - to detect various platforms and devices, provide an integrated solution for storage, processing and distribution to mobile devices, desktops, connected TV and IPTV set top boxes.

- **SLAs** of up to 99.95% to provide the required connectivity.

- **Customisation** - bandwidth on demand to cater for demand fluctuations.

- **WAN Optimization and application delivery controllers** - to enhance application delivery and network efficiency.

- **Security** - to secure networks and storage systems.

- **Analytics** - built into the processes

- **Scalable Storage** - to offer a hybrid cloud offering that is secure, scalable with cost effective storage option for organizations.

- **Vertical Solutions** - to focus on solutions that will target demands for content and media and gaming providers. This will ensure that SingTel has the required knowledge and expertise in these areas.

- **Consistency** - to ensure consistent delivery and experience across services in storage, processing and distribution.
Conclusion

As the content and media, and gaming industries continue to evolve, their technological requirements are rapidly growing. Most of the organisations in these industries are increasingly leveraging ICT to innovate their business models to establish a competitive differentiation. Hence, technology is increasingly getting embedded into key processes of storage, processing and distribution. This is creating new challenges for these organizations in the areas of connectivity, customisation, pricing, consistency and regulations.

Enterprise data networks form the foundation of the ICT environments for most of these organizations. It is essential to manage peak network performance at all times while aligning costs and bandwidth with dynamic demands. These solutions should provide efficient connectivity, wide coverage, high performance levels, and flexibility at lower costs. Hence, Frost & Sullivan recommends selecting an integrated enterprise data services provider that can go beyond the traditional WAN networks to offer customised solutions for organisations across storage, processing and distribution needs.
About SingTel
SingTel is Asia’s leading communications group providing a portfolio of services including infocomm technology, pay TV as well as voice and data solutions over fixed, wireless and Internet platforms. The Group has presence in Asia and Africa with over 500 million mobile customers in 25 countries, including Bangladesh, India, Indonesia, the Philippines and Thailand. It also has a vast network of offices throughout Asia Pacific, Europe and the United States.

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