



2020 金融資訊長交流會

# 領雲直行 佈局新時代

# 迎戰金融上雲： 新世代混合雲平臺實戰

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資深技術顧問



## 技術特性說明



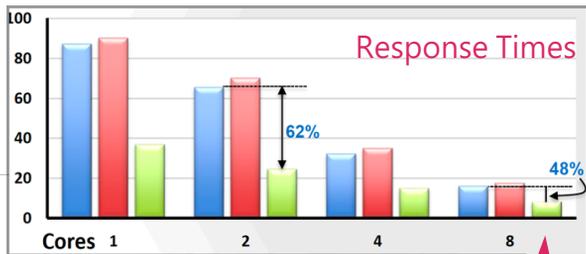
## 應用及實證



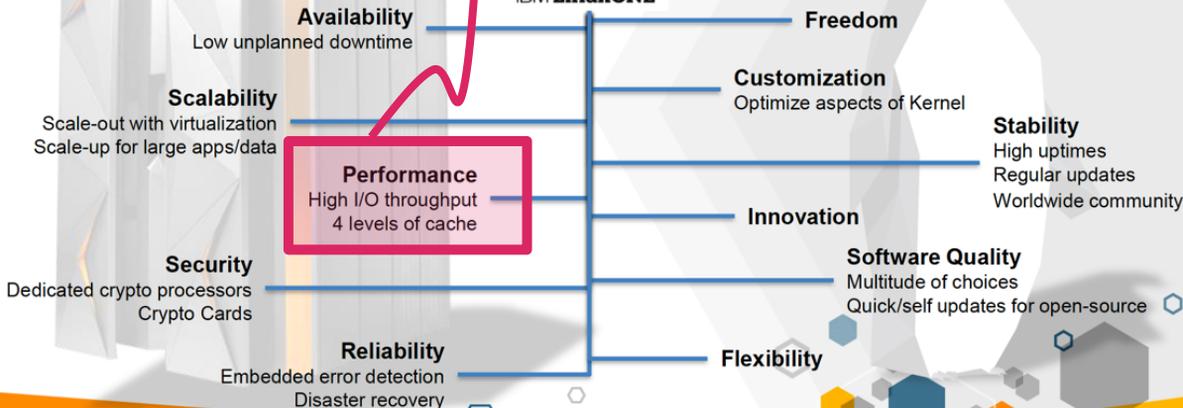
# 技術特性說明

以優越的性能與安全、穩定為基礎，引領架構新世代

- 快速的回應速度，業務執行不延遲
- 多重硬體加速器，有效地減少等待



IBM LinuxONE™

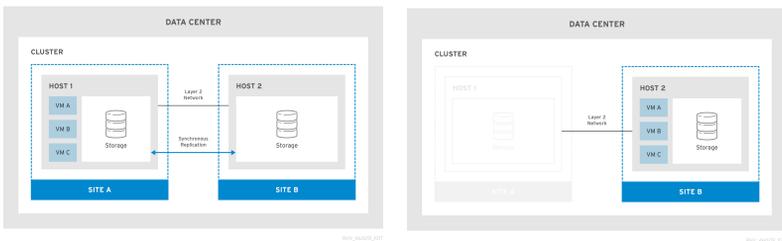




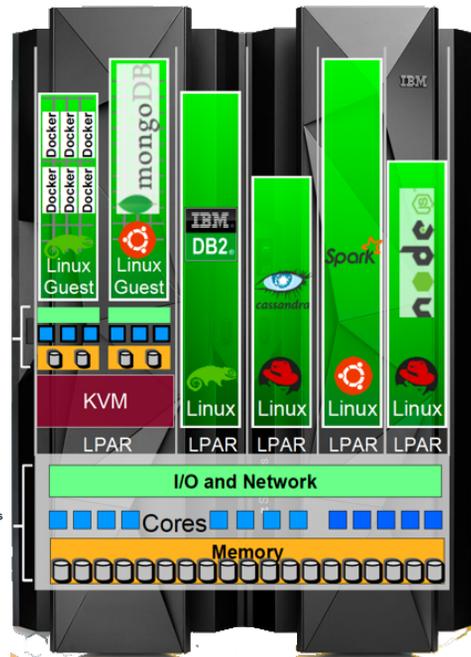
# 技術特性說明

實體、虛擬化架構，符合企業備援規範

## Active-Active / Active-Passive Disaster Recovery

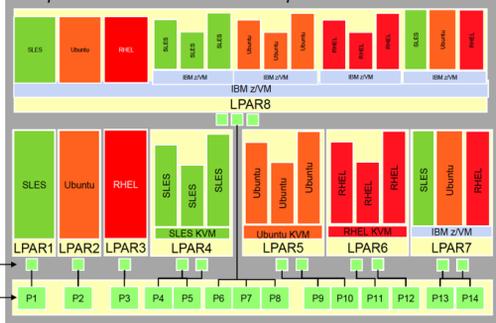


安全、彈性、敏捷



All Linux images are capable of hosting containers

### Simplified view of virtualization options on IBM LinuxONE



Virtual & Virtual<sup>2</sup> CPUs

Virtual CPUs

There are typically dozens, even hundreds of Linux servers in a KVM or z/VM LPAR.

Traditional PR/SM or PR/SM+ IBM DPM

Logical CPUs  
Real CPUs\*

P1 - P12 are Physical cores, also known as Integrated Facility for Linux (IFL) processors

\* - Only one shared pool of cores per system



# 技術特性說明



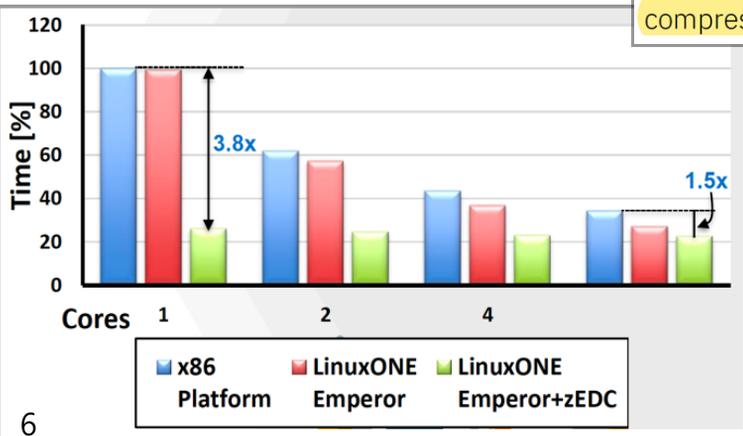
## 硬體壓縮加速器 zEnterprise Data Compression {zEDC}

### The zEDC solution

In July 2013, IBM introduced IBM zEnterprise® Data Compression (zEDC) in z/OS® 2.1 along with the IBM zEDC Express adapter for hardware. The combination of these two offer a compression acceleration solution designed for high performance, low latency compression with few processor cycles and little additional overhead.

### New Integrated Acceleration for zEDC

IBM introduced a new on-chip accelerator for the IBM z15™, to replace the zEDC Express adapter that was on earlier IBM Z® servers, and they made it standard on the z15 server. Using the new Integrated Accelerator for zEDC, there is up to **8x faster** application elapsed time with no additional CPU time over z14 zEDC Express<sup>2</sup>. For the IBM LinuxONE™ III, this compression is **100X faster than software** compression on Intel<sup>3</sup>.



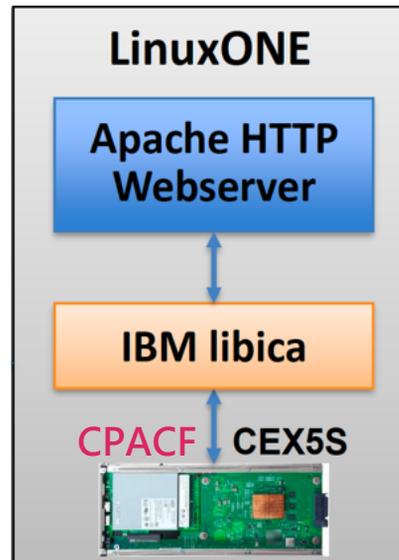
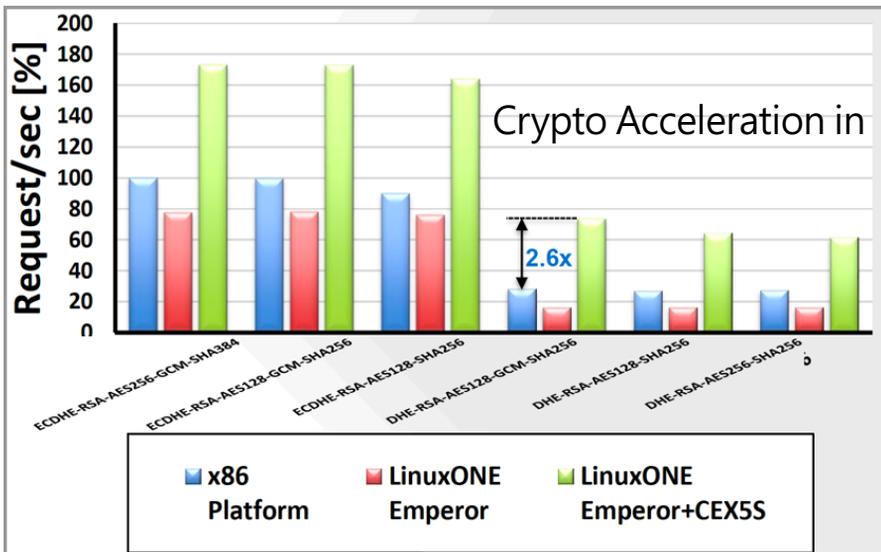


# 技術特性說明



## 硬體加密/解密加速器 Crypto Acceleration {Express/CPACF}

- 有效提升整體吞吐量達 2.1~2.6 倍
- 降低 CPU 負載達 80% 以上
- 整合企業全域安全策略 0 負擔





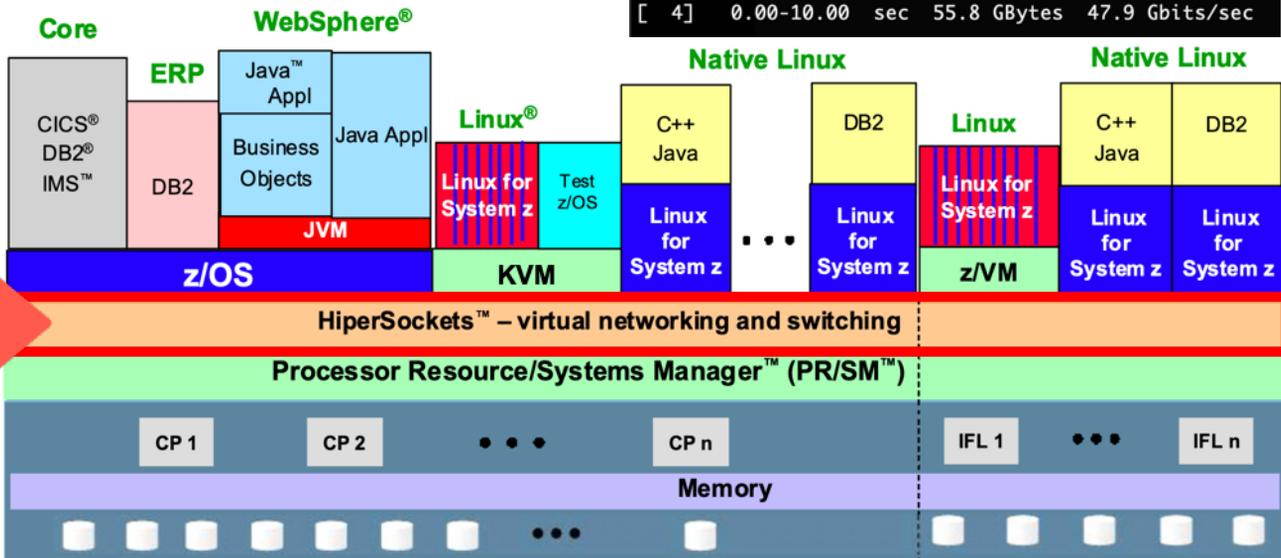
# 技術特性說明

## 有效提升網路效率並降低成本 HyperSockets Networks

- 記憶體層級的網路傳輸，反應快
- 內部大頻寬可滿足需求，容量大
- 高品質的高速網路環境，真節省

```

host01:~ # iperf3 -c host01-hsi0 -t 10 -i 5
Connecting to host host01-hsi0, port 5201
[ 4] local 192.168.200.20 port 59746 connected to 192
[ ID] Interval          Transfer      Bandwidth
[ 4]  0.00-5.00 sec    27.7 GBytes  47.6 Gbits/sec
[ 4]  5.00-10.00 sec  28.0 GBytes  48.2 Gbits/sec
-----
[ ID] Interval          Transfer      Bandwidth
[ 4]  0.00-10.00 sec  55.8 GBytes  47.9 Gbits/sec
[ 4]  0.00-10.00 sec  55.8 GBytes  47.9 Gbits/sec
  
```





# 應用及實證

## 壓縮、加密 無所不在



### Dynamic Compression Enabled

With dynamic compression, the web server transferred 197.6 KB and took 281 ms to load. The most significant savings came from the CSS and JavaScript files, with the size of the CSS files alone dropping by over 130 KB.

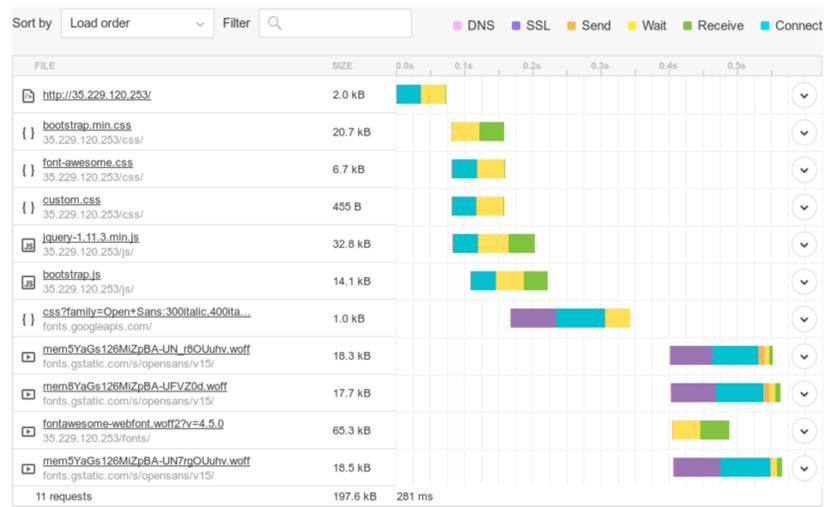
### Web Data Compression

No Compresses : Compresses

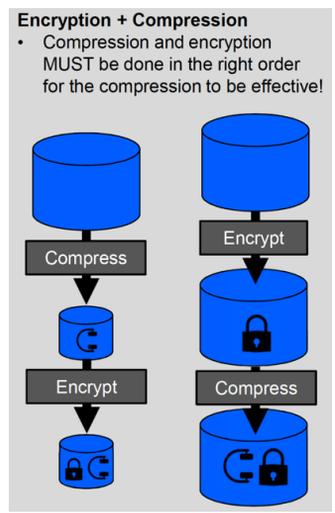
Transferred = 445KB : 197KB

Data load = 329ms : 281 ms

Content Type	Size
HTML	2.01 KB
Images	119.82 KB
CSS	28.86 KB
JavaScript	46.94 KB
<b>Total</b>	<b>197.6 KB</b>



Timeline with dynamic compression enabled.





# 應用及實證

www.ibm.com



Performance grade  
**D 66**

Page size  
**2.1 MB**

Load time  
**5.00 s**

Requests  
**126**

- 超過 90% 的有效網路流量均支持標準壓縮、加密，不變更現有架構即可啟用
- Server 端啟用壓縮可有減少 70% 網路傳輸，進而提高端到端的交易反應

GRADE	SUGGESTION
<b>F</b> 0	Avoid URL redirects
<b>F</b> 0	Reduce DNS lookups
<b>F</b> 0	Make fewer HTTP requests
<b>F</b> 0	Configure entity tags (ETags)
<b>F</b> 0	Add Expires headers
<b>E</b> 60	Use cookie-free domains
<b>D</b> 67	Compress components with gzip

Sort by	Rising	Filter	Legend
Response Total Size	<input checked="" type="checkbox"/>	<input type="text"/>	<span style="color: pink;">■</span> DNS <span style="color: purple;">■</span> SSL <span style="color: blue;">■</span> Connect <span style="color: orange;">■</span> Send <span style="color: yellow;">■</span> Wait <span style="color: green;">■</span> Receive <span style="color: grey;">■</span> Blocked
FILE	SIZE		
<a href="https://1.www.s81c.com/common/stats/ida_stats.js">https://1.www.s81c.com/common/stats/ida_stats.js</a>	67.2 KB		
<a href="https://tags.tiqcdn.com/utag/ibm/web/prod/utag.js">https://tags.tiqcdn.com/utag/ibm/web/prod/utag.js</a>	67.9 KB		
<a href="https://1.cms.s81c.com/sites/default/files/2020-01...">https://1.cms.s81c.com/sites/default/files/2020-01...</a>	115.2 KB		
<a href="https://1.www.s81c.com/common/v18/js/www.js">https://1.www.s81c.com/common/v18/js/www.js</a>	138.4 KB		
<a href="https://static.hotjar.com/c/hotjar-42920.js?sv=5">https://static.hotjar.com/c/hotjar-42920.js?sv=5</a>	274.4 KB		
<a href="https://www.ibm.com/common/digitaladvisor/cm-app/...">https://www.ibm.com/common/digitaladvisor/cm-app/...</a>	291.4 KB		

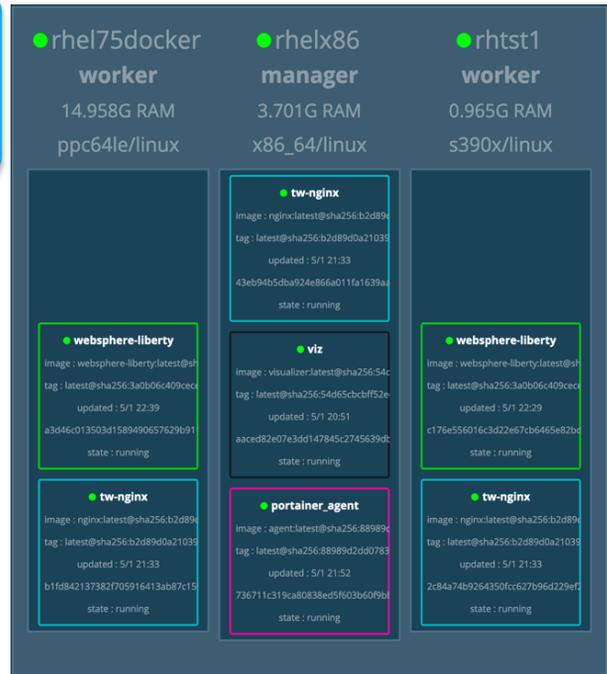
Compression reduces response times by reducing the size of the HTTP response. Gzip is the most popular and effective compression method currently available and generally reduces the response size by about 70%. Approximately 90% of today's Internet traffic travels through browsers that claim to support gzip.



# 應用及實證

## Docker 實現雲端輕量化

### 真正實現混合雲環境應用 – 依據需求快速反應





# 應用及實證



## IBM LinuxONE 展示中心 · 立即驗證

- AP / DB / Cloud 實作、驗證 { PoC }
- 定期舉辦技術研討及上機實作課程



### Demo Center

#### IBM LinuxONE



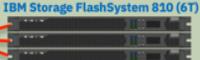
**Base01**  
(GPFS Master) 

**Host01**  
(KVM Server) 

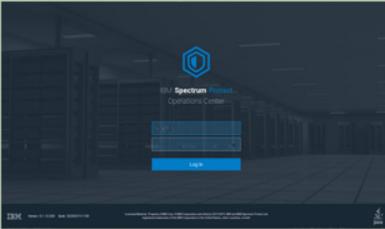
**Host02**  
(KVM Server) 

**RHEL7701**  
(TSM Server) 

**RHEL7702**  
(Client - Backup / Restore) 

Name	Status	Processors	Memory (GB)	Processor Utilization	Network Utilization	Description
Base01	Active	2	64.0	4 %	1 %	GPFS Manager Node
Host01	Active	2	64.0	0 %	1 %	KVM Host01
Host02	Active	2	64.0	1 %	1 %	KVM Host02
RHEL7701	Active	2	32.0	1 %	1 %	TSM Server 8.1.10
RHEL7702	Stopped	1	8.0			Client - Backup / Restore PoC





Name	Path	Mount Type	File System	Disk State	Health State	Capacity
39026-1-0001-1-0001-01	system	Fileshare	abfs	Ready	✓ Healthy	approximately 300.00 GB
39026-1-0001-1-0001-02	system	Data	abfs	Ready	✓ Healthy	approximately 300.00 GB
39026-1-0001-1-0001-03	system	Data	abfs	Ready	✓ Healthy	approximately 300.00 GB
39026-1-0001-1-0001-04	system	Data	abfs	Ready	✓ Healthy	approximately 300.00 GB
39026-1-0001-1-0001-05	system	Data	abfs	Ready	✓ Healthy	approximately 300.00 GB



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