

IBM's Smart Solutions Drive Innovation for Hong Kong Broadband Network

Building a Dynamic Infrastructure



Addressing today's challenges *and* tomorrow's opportunities.

Improve service and be the No.1

“According to all of the consumer surveys conducted in the past 18 months, HKBN has been rated as the 2nd best Internet Service Provider in Hong Kong, and is far better than the 3rd and the 4th ones. Our rating is very close to the dominant player.

Our aim is be ahead of them. ”#

Adventure for success with risk management

“Don't be afraid to take risk. All big technology companies are exposed to failure risk when they become complacent over their past achievements and is not willing to take risk. I hope the new management team will prepare for all the best and worst scenarios and have the guts to take risks. ”#

Expand business while having cost reduction

“In fact, since most of the material costs and labor costs are expected to be lower in the coming 2 years, this is a good time for us to further expand our Fiber-to-the-Home network in full force. “#



Quoted from Company Strategy presented by Ricky Wong, co-founder and Chairman of Hong Kong-based City Telecom (HK) Ltd (CTI) at 17th Nov, 2008 (<http://www.ctigroup.com.hk/en/strategy.html>)

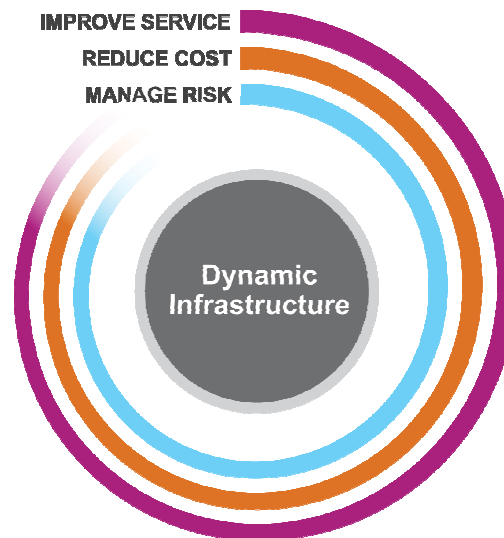
Addressing today's challenges *and* tomorrow's opportunities.

IMPROVE SERVICE

Not only ensuring high availability and quality of existing services, but also meeting customer expectations for real-time, dynamic access to innovative *new* services.

REDUCE COST

Not just containing operational cost and complexity, but achieving *breakthrough* productivity gains through virtualization, optimization, energy stewardship, and flexible sourcing.



MANAGE RISK

Not only addressing today's security, resiliency, and compliance challenges, but also preparing for the new risks posed by an even more *connected* and *collaborative* world.

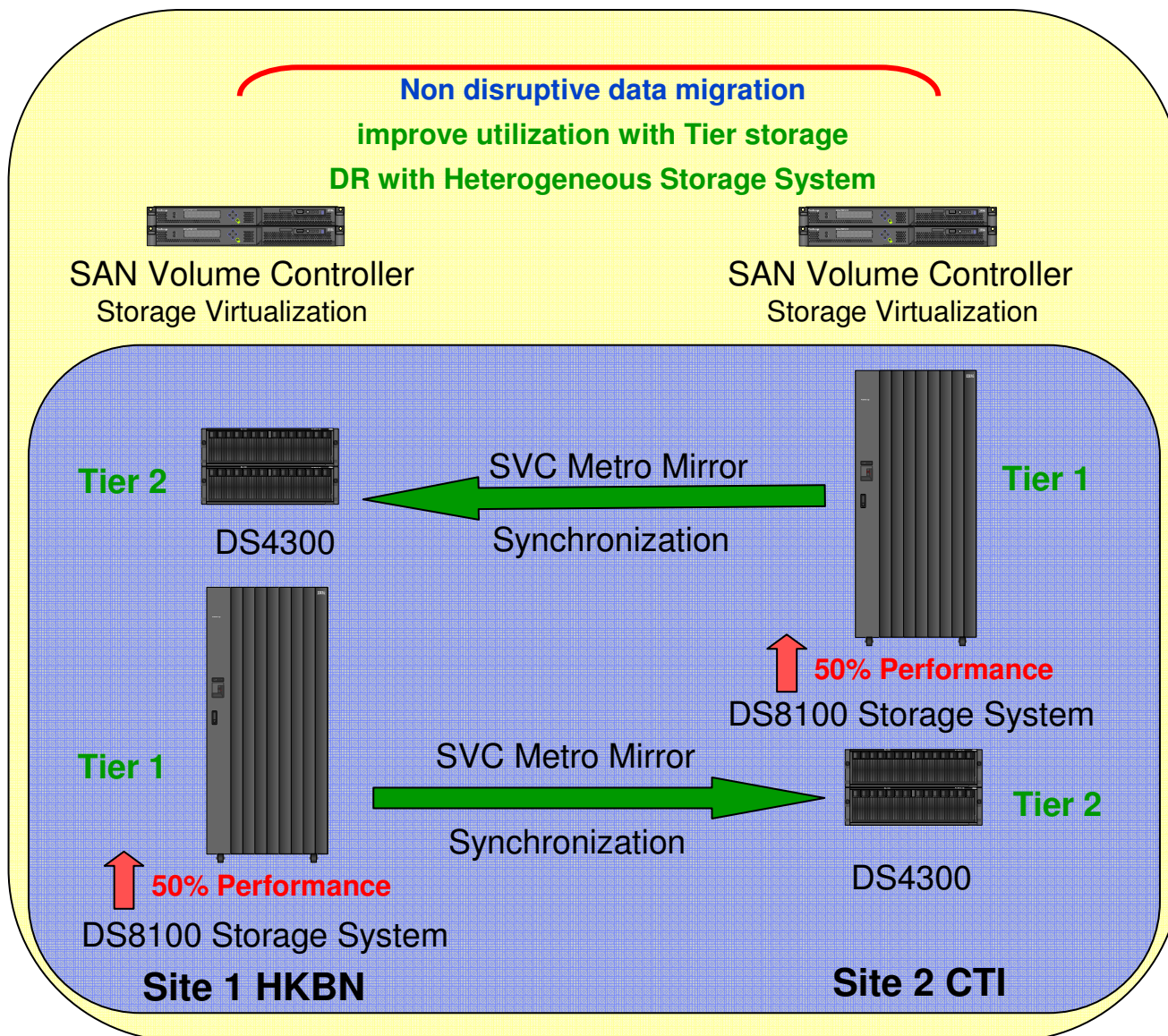
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Dynamic Infrastructure for Hong Kong Broadband: Driving innovations across business and IT assets....



...supporting converged management to deliver
smarter business outcomes.

Enhance Infrastructure



Key Challenges

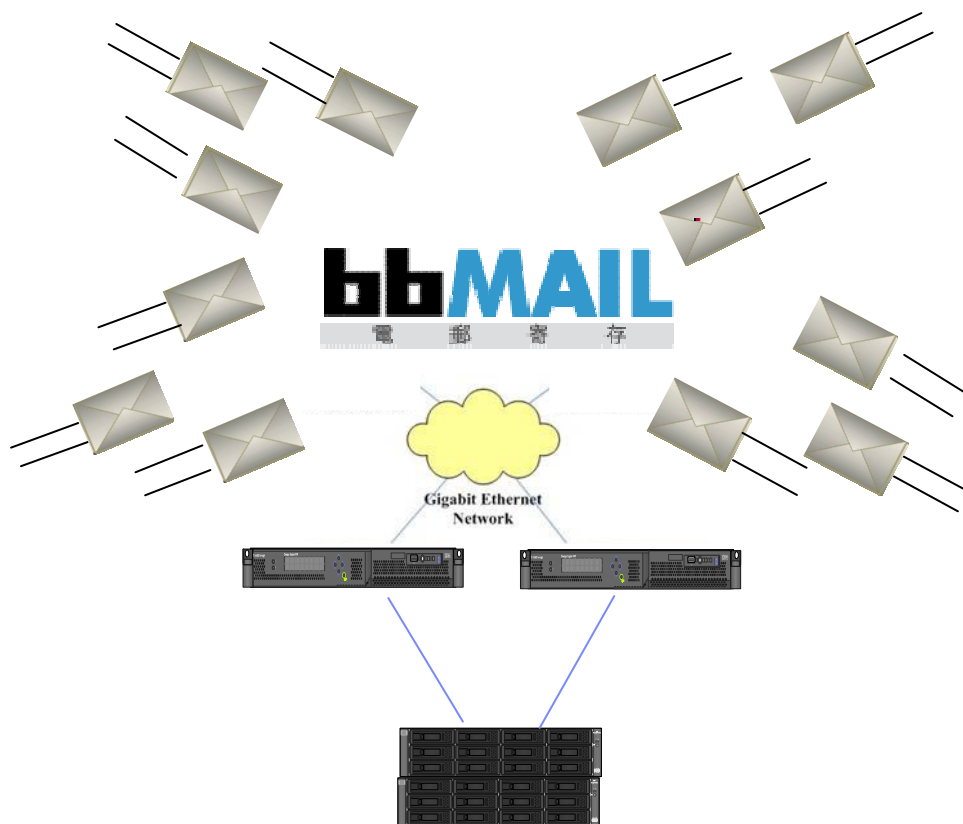
- High performance infrastructure to cater fast growing business demand
- Business impact under technology transition
- Maximize the return of investment

Benefits from IBM storage solution

1. Improve 50% performance for better service level under data growth
2. Zero interruption to Service during technology migration
3. Cost Reduction with Storage virtualization

Drive for business growth

Example: Improve service of bbMAIL



“We will not rest as long as there is a single outstanding unresolved customer service complaint.”

Reference from Core Value in “what does CTI Stand for?”
“http://www.ctigroup.com.hk/en/cti_stand_for.html#purpose”

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Previous Challenge

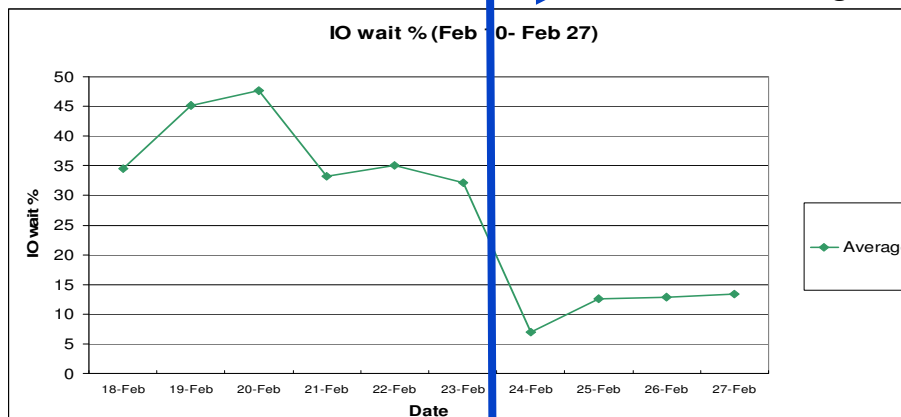
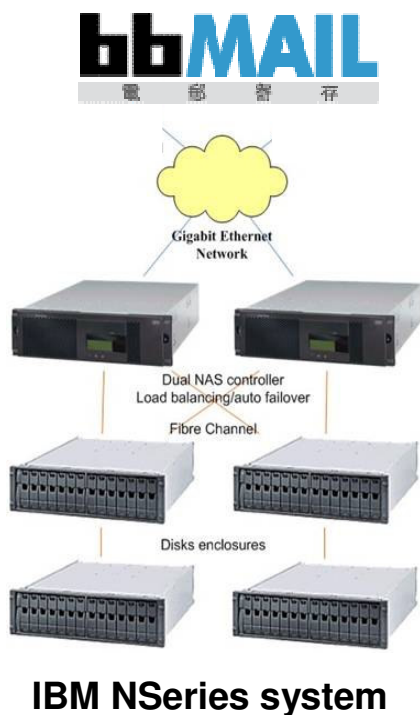
- Rapid growth of bbMAIL user and usage that are going to reach the performance upper limit of storage system for bbMAIL
- Potentially slow email response and service interruption to user at peak hour
- Restricting business growth of bbMAIL service

Solution Strategy

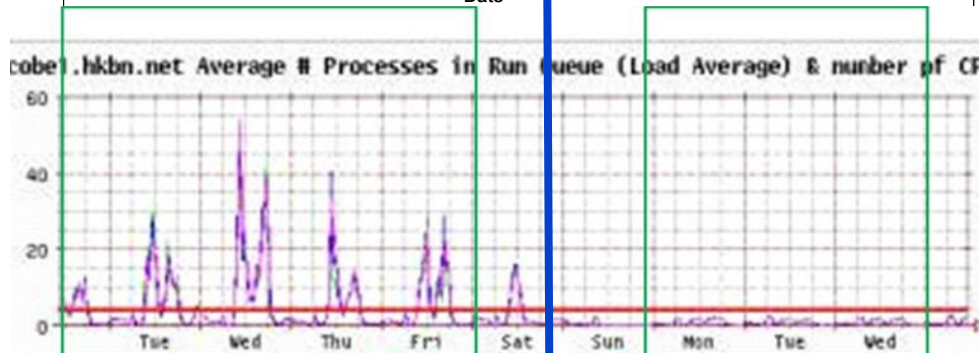
- Replacement with **proven** solution that can improve & outperform the service level
- Scalable with headroom for user growing in future
- Protected & high resilience infrastructure
- Flexible for dynamic business environment

Drive for business growth

Proven Solution with Proof of Concept



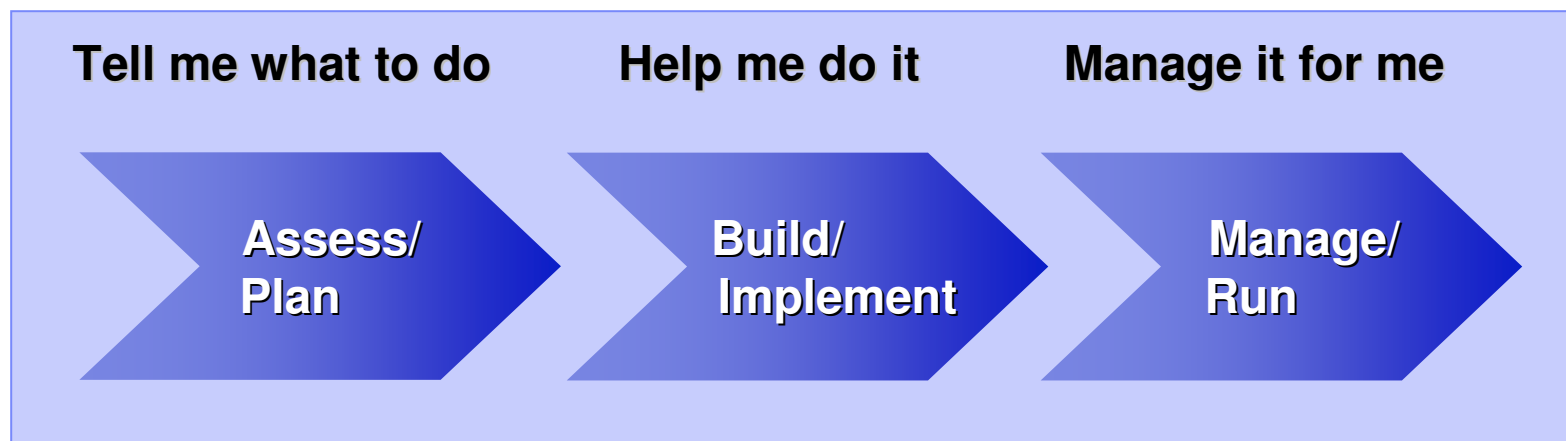
**Reduce Email
IO waiting%
up to 70%**



**Reduce Load
Average up
to 90%**

- Improve bbMAIL Performance Service Level by >70%
- Can cater immediate 200% BUSINESS GROWTH and further in future
- Well managed business risk with PRO-ACTIVE monitoring and reporting.

IBM delivers smarter data center solution



- Requirements and strategy
- Assessment
- Architecture and design
- Solution approach

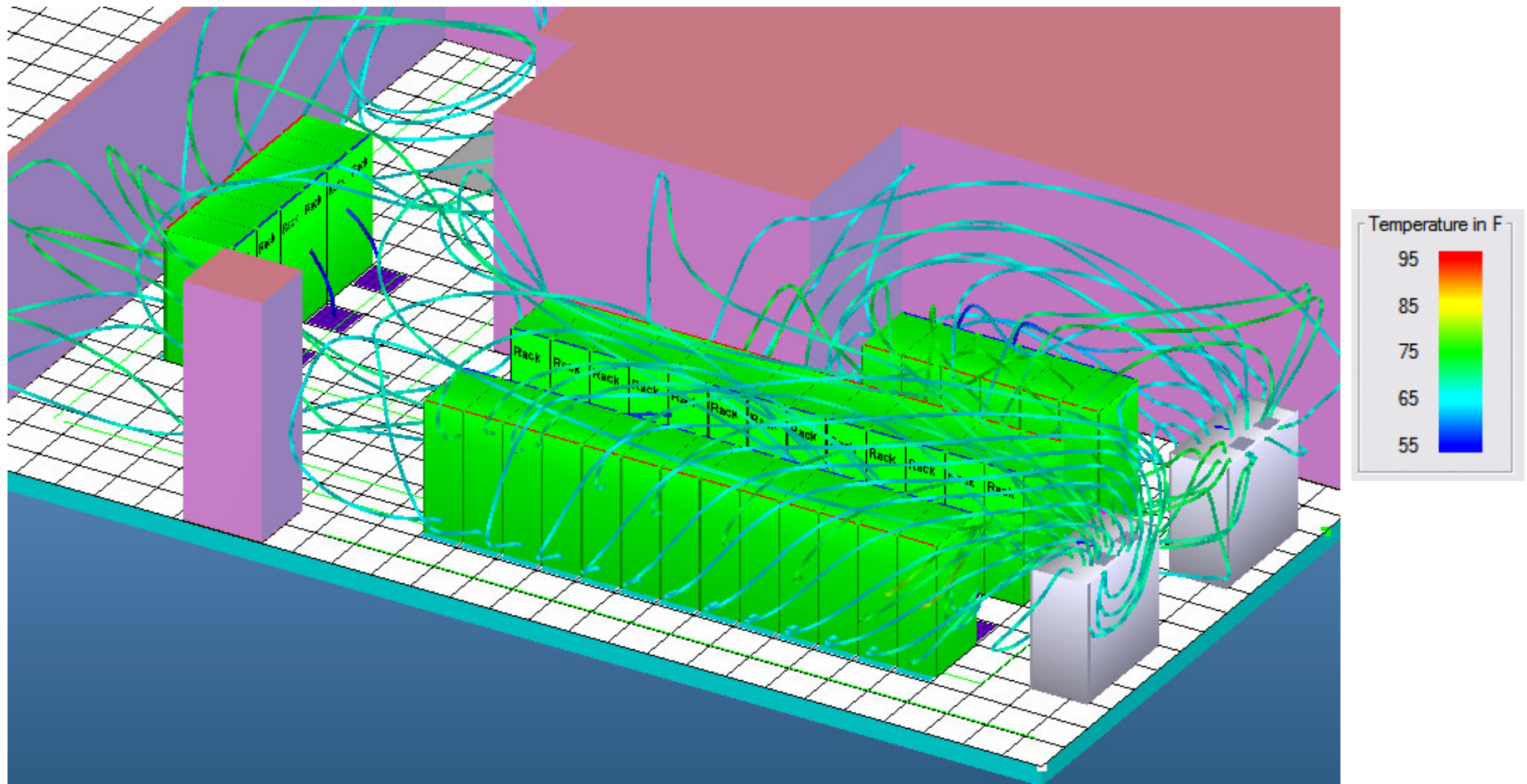
- Solution build
- Integration testing
- Pilots
- Deployment

- Maintenance

Highlights of the Analysis

- **Initial Design.** Ensure that the proposed layout gives the desired airflow rates for the immediate and anticipated needs and the rack inlet temperatures are within acceptable range.
- **Failure Scenarios.** Predict the behavior with failed CRAC units (and other cooling units) and stand-by units.
- **Changes in Layout.** Data centers are evolving systems. Equipment is frequently re-located, new equipment is installed, and new CRAC units are commissioned. Predict the impact of these changes on the cooling performance.
- **Energy Savings.** Use analysis tools to determine if the CRAC units are providing maximum benefit or if the floor space is efficiently utilized.
- **Diagnose Potential Cooling Problems.** Use analysis tools to identify the causes of inadequate cooling, which results in hot spots, and evaluate potential solutions.

Return Air Path



The New Data Center



Key Benefits

- Offering new data center space to capture business opportunities in the marketplace
- Providing new data center space in just one and half month from design and build
- Adopting the space-optimization approach to reduce server footprint
- Adopting the cooling-optimization approach to optimize the air-cooling within the rack space
- Allowed the desired airflow rates for immediate and anticipated needs
- The server rack inlet temperatures are within acceptable range

...Data center solution to capture
business opportunities.

The strategy and success of Hong Kong Broadband Network

HKBN's strategy	Key Challenges	Resolution with IBM
IMPROVE SERVICE and be the No.1	<ul style="list-style-type: none">▪ High Performance infrastructure for business growth▪ Business Impact under Technology transition	<ul style="list-style-type: none">▪ Latest Storage System that improve the service level with future expansion capability▪ Non disruptive technology transition through storage virtualization
Expand Business while having COST REDUCTION	<ul style="list-style-type: none">▪ How it can maximum value return from all investment	<ul style="list-style-type: none">▪ Maximize resource value and cost reduction with Tier storage and Storage virtualization
Adventure for success with RISK MANAGEMENT	<ul style="list-style-type: none">▪ Data growth and usage can be unpredictable under aggressive expansion in the dynamic marketing	<ul style="list-style-type: none">▪ Monitoring and Reporting tools with thresholds and proactive alerts for risk management

IBM's Dynamic Infrastructure helps HKBN transforming IT access and services into superior business value with agility and speed.