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13 Anni nell'IT



**vmware**  
CERTIFIED  
DESIGN  
EXPERT 4

Musicofilo,  
Viaggiatore,  
Pig Data Expert

<http://juku.it>  
@fabiorapposelli

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### La lunga storia dello stato solido



1978: Intel logo, Intel 386 processor, Intel 387 coprocessor

1979: Intel logo, Intel 386 processor, Intel 387 coprocessor

1984: Intel logo, Intel 386 processor, Intel 387 coprocessor

1990: Intel logo, Intel 386 processor, Intel 387 coprocessor

1995: Intel logo, Intel 386 processor, Intel 387 coprocessor, FLASHDISK logo, Intel logo, Intel 386 processor, Intel 387 coprocessor

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Lo stato solido oggi:



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Perché SSD e Virtualizzazione?

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Eliminare l' I/O Blender

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Applicazioni  
Ingorde o  
Tier1

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Virtual Desktops

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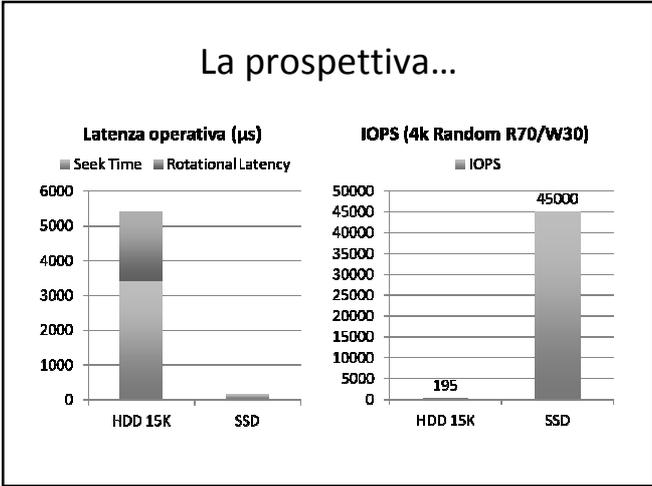
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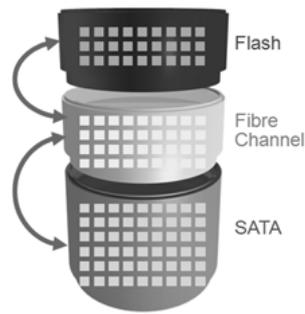
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## Approccio SAN

### Aggiungere SSD su storage condiviso pre-esistente.

- + Sfruttare meglio l'investimento sullo storage.
- + Ottimo complemento all'ATS.
- + vMotion, HA, FT compatibili al 100%
  
- Flash male utilizzata (senza ATS).
- La SAN introduce latenza.
- Costo elevato.



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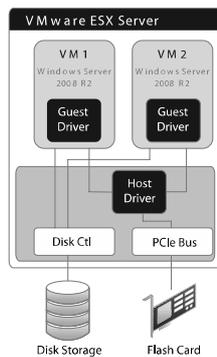
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## Approccio PCIe

### Scheda Flash PCIe interna ad ESX

- + Latenza bassissima.
- + Costi contenuti.
- + Pochissimi prerequisiti HW.
  
- Supporto per vMotion discutibile/inesistente.
- Ulteriore matrice di compatibilità.
- Poco adatto ai Blade.



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## Approccio dedicated flash array

### Array "all-flash" dedicato

- + Velocità senza compromessi.
- + vMotion, HA, FT compatibili al 100%.
- + Latenza bassissima con il giusto protocollo.
  
- Complessità di gestione.
- Costo elevato.




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	FC	FCoE	iSCSI	Infiniband
<b>Banda Passante</b>	1 > 16 Gb/s	10 Gb/s	1 – 10 Gb/s	10 > 40 Gb/s
<b>Network Fisico Dedicato?</b>	Si	Ni	No	Si
<b>Lossless</b>	✓	✓	✓*	✓
<b>Multiprotocollo</b>	No	Solo Convergenza	Si	Si
<b>Supporto dei Vendor</b>	Massimo	Così Così	Massimo	Scarso
<b>Costo</b>	\$\$\$	\$\$\$	\$\$	\$\$\$

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## SCSI Express



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## Remote Direct Memory Access (Infiniband)

### A livello Hypervisor

- Usare iSER e SRP per RDMA al posto di TCP/IP (- latenza + throughput)
- vMotion over RDMA (+ veloce - overhead CPU)

### A livello VM Guest

- vRDMA permetterà un utilizzo **serio** di iSCSI e NFS intra-guest.
- vRDMA permetterà una comunicazione low-latency tra guest su host diversi (e.s. Oracle Cache Fusion)

Maggiori informazioni: <http://bit.ly/H3Mi4h>

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### VMware non va bene per Oracle

- Fino a 32vCPU e 1TB RAM, se avete un database server più grande il problema è un'altra parte.
- **MYTH BUSTED** *ben studiata.*
- *INET3 su NIC a 10Gb, RDMA.*
- RAC oggi "non è non supportato".

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### iSCSI non è performante con gli SSD

- iSCSI over DCB permette di sfruttare al meglio il protocollo, rendendolo performante.
- Tutti i produttori di hardware supportano iSCSI.
- **MYTH BUSTED** *sempre si può migliorare.*
- Con iSCSI e le NIC a 40 Gbit miglioreranno ulteriormente latenze e throughput.

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VMUG IT Hands On Lab



Fusion-IO : Fine Maggio 2012

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Q&A

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Grazie!

@fabiorapposelli  
<http://juku.it>

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