



Flash Memory Summit

Flash in China Enterprise Market

WatchStor
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Santa Clara, CA
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Flash Memory in China Enterprise

In 2016, the popularity of flash memory in the Chinese market has been very rapid growth, almost all business users are considering the data center, the use of flash memory products, especially in the data center, flash memory array, hybrid array and server flash Has been widely used, and began to cover small and medium-sized business users.

Based on economic considerations, Chinese users have a display of flash memory applications, compared to the larger capacity of the product, more consideration to read good performance products, and small size of the M.2 products, as the future of the world's largest flash memory Market, these trends will show the impact of market development.

The presentation will detail the trends in these technology applications, showing the joy of business users and data centers in China and the reasons behind them.



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Catalog

- How the business is using flash memory ?
 - Flash in the Storage System
 - Traditional Storage
 - Server SAN and HCI
 - Flash in the Server and Cloud
 - Server for Computing
 - Server for Storage
 - Cloud
- Flash in the field of innovation



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Overview of China Market

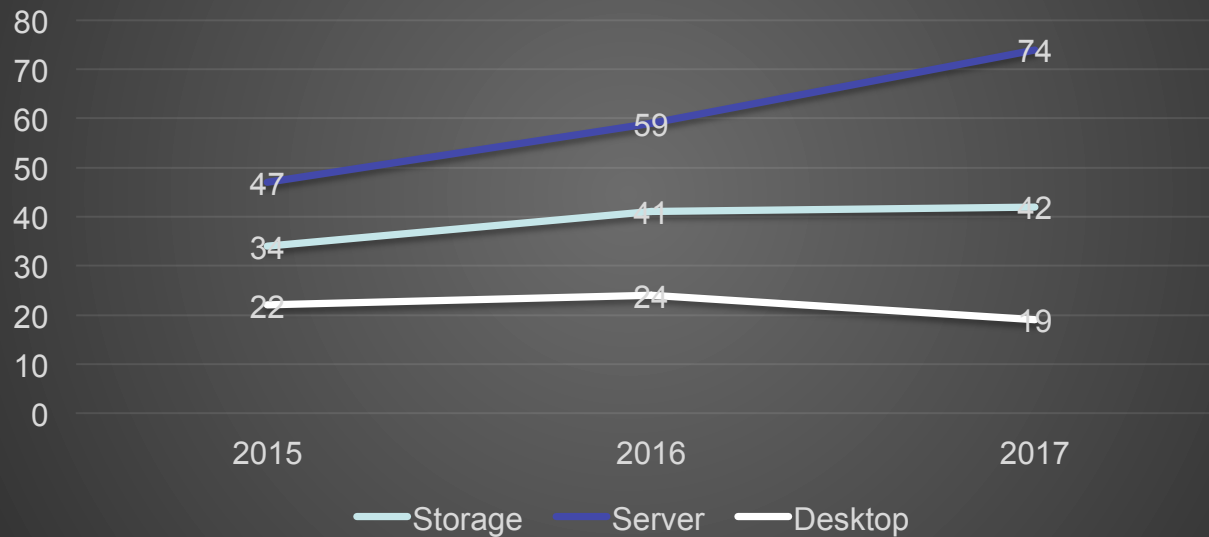
- Solid State Storage Market Share only 5%
- All-Flash Storage Market Share ~3.7%
- Storage System Revenue Forecast 37.7% YoY
- Enterprise IT Spending Growth 11% YOY



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The enthusiasm of the Flash

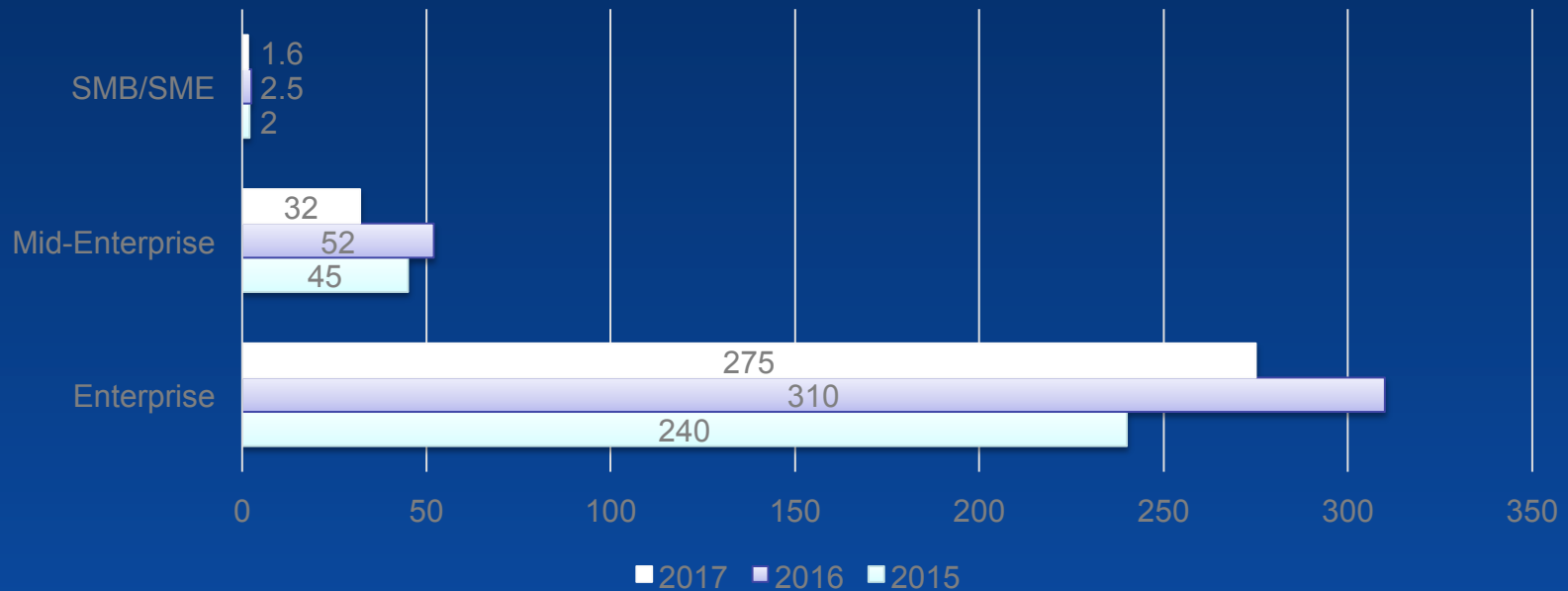
The enthusiasm of enterprise procurement 2015-2017





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Average Flash investment



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Unit: K\$
Source: WatchStor



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Big Desire vs Slow Growth Why ?

- Price still High per TB and Low price dumping HDD System
- Data recovery, data destruction, data validation, data security.....
- Electricity, space, life and other issues in most enterprises is not prominent
- SSD price bucked the trend 15-20% in 2016



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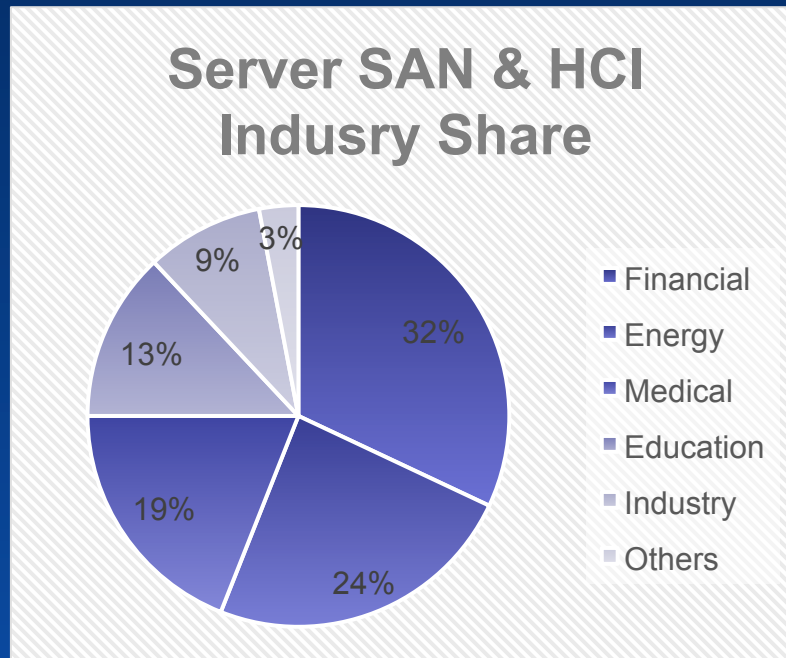
Flash in Traditional Storage

- Enterprises to buy a new storage system, will consider more flash memory, but only 30% will eventually buy a certain amount of flash memory.
- Chinese domestic storage suppliers will be more welcome.
- Macrosan, Uniswdc rapid growth to replace CX4, VNX, DS5000, V7000.
- 20k-50k price of the market is the highest proportion.
- Part of the traditional storage users to use HCI.



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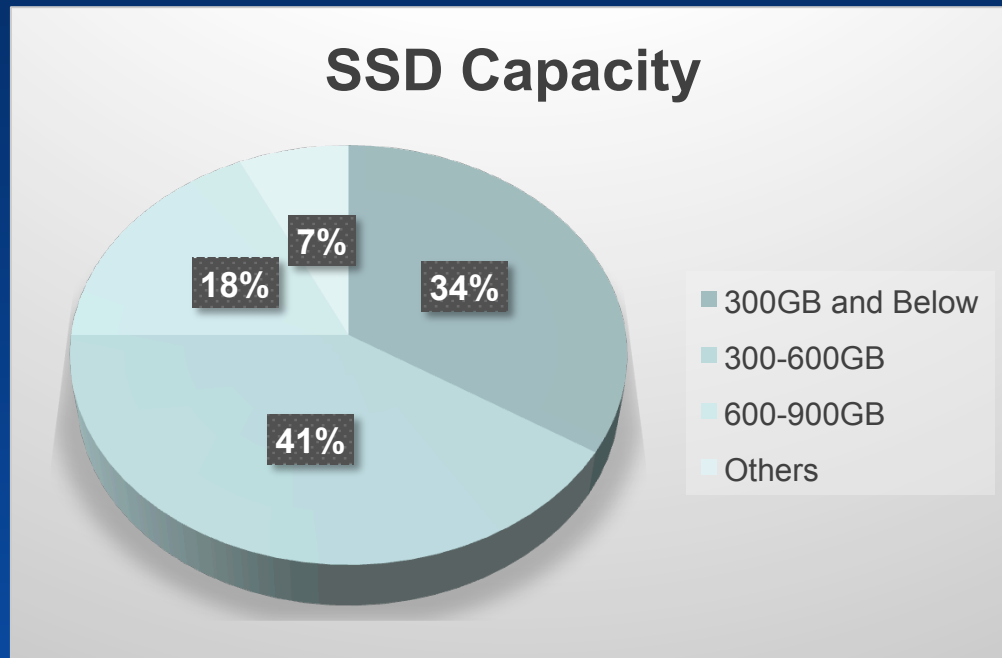
Server SAN and HCI



- 92% Server SAN & HCI users have chosen flash memory
- Flash provides more than 80~90% performance and 20~25% capacity
- Flash accounts for 37% of storage cost



Server SAN and HCI



- 300GB, 600GB capacity is the most popular SSD
- The number of SSDs for a single host is 2-4
- The vast majority of HCI systems are in 20-40 nodes
- The SSD in a distributed storage system is in the 80-160 block (40-80 nodes)



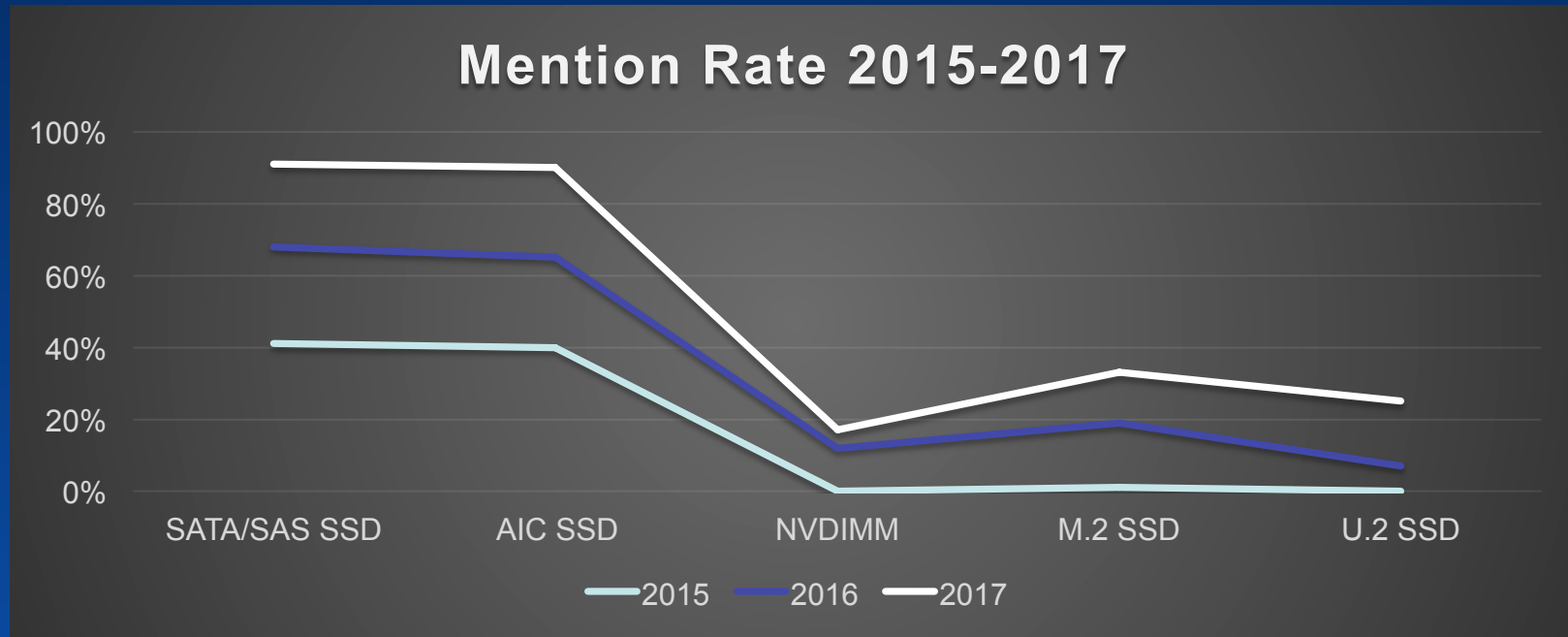
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Flash in the Server and Desktop

- The server and desktop markets accounted for 35-40% of corporate flash memory and 75-80% shipments.
- More than 70% of businesses use flash memory from workstations, commercial PCs and laptops.
- 40% of enterprises through the installation of flash memory, extended server, PC, laptop life.



Server for Computing





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Server for Computing

- More than 34% SSD use in Database, Oracle, MySQL, MS SQL
- Chinese users are more inclined to capacity rather than performance
- 1.2TB capacity is currently the largest purchase of SSD capacity of the largest



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Server for Storage

- Server for Storage is the user who uses the server as a storage server, Such as DELL PowerEdge R740xd.
- In rendering farms, video sites, Internet companies, all-SSD storage servers are amazing.
- Mainly to 300-600GB SSD-based, single server 12-24 block SSD.
- 50% of Oracle database users are using SSD in varying degrees.



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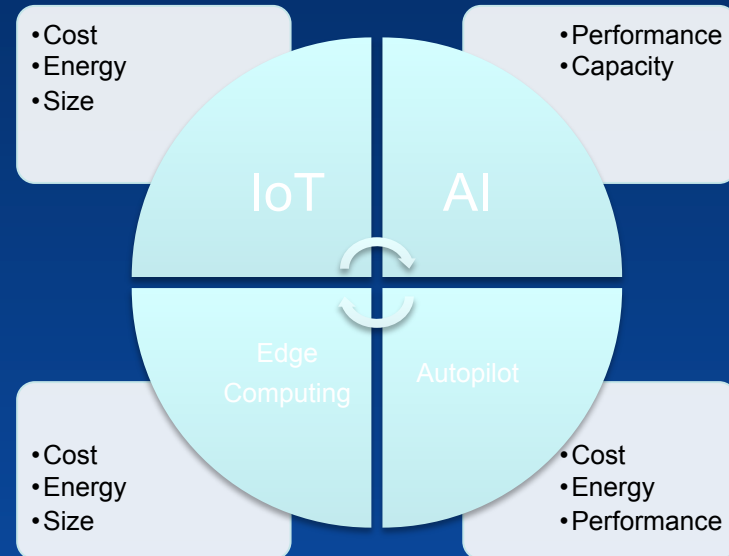
Flash in Cloud

- Ali cloud, Baidu cloud, Tencent cloud and other cloud providers to provide flash base cloud drive
- 27% of cloud users, use flash base cloud drive and average price higher than HDD 120%, performance higher than HDD 400%
- Cloud service provider's SSD optimization focuses on code efficiency, parallel computing, hydration, SMP affinity
- Cloud service providers in the proportion of SSD and HDD is currently about 1: 4



Flash in the field of innovation

- AI will use a lot of flash memory, especially in the Deep Learning
- Autopilot will use a significant amount of SSD
- IoT in the Chinese market is developing rapidly





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Thank you

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