

## JSTV Production Network Storage System Project

### About the project

JSTV was founded on May 1, 1960 and has emerged as a major provincial TV station. In 2006, it was merged with more than 20 companies to form the Jiang Su Broadcasting TV Station. Currently, JSTV comprises 12 TV channels, including 2 satellite channels, 6 terrestrial channels and 4 national digital premium channels, and has released a series of popular programs such as If You Are the One, a TV blind date program.

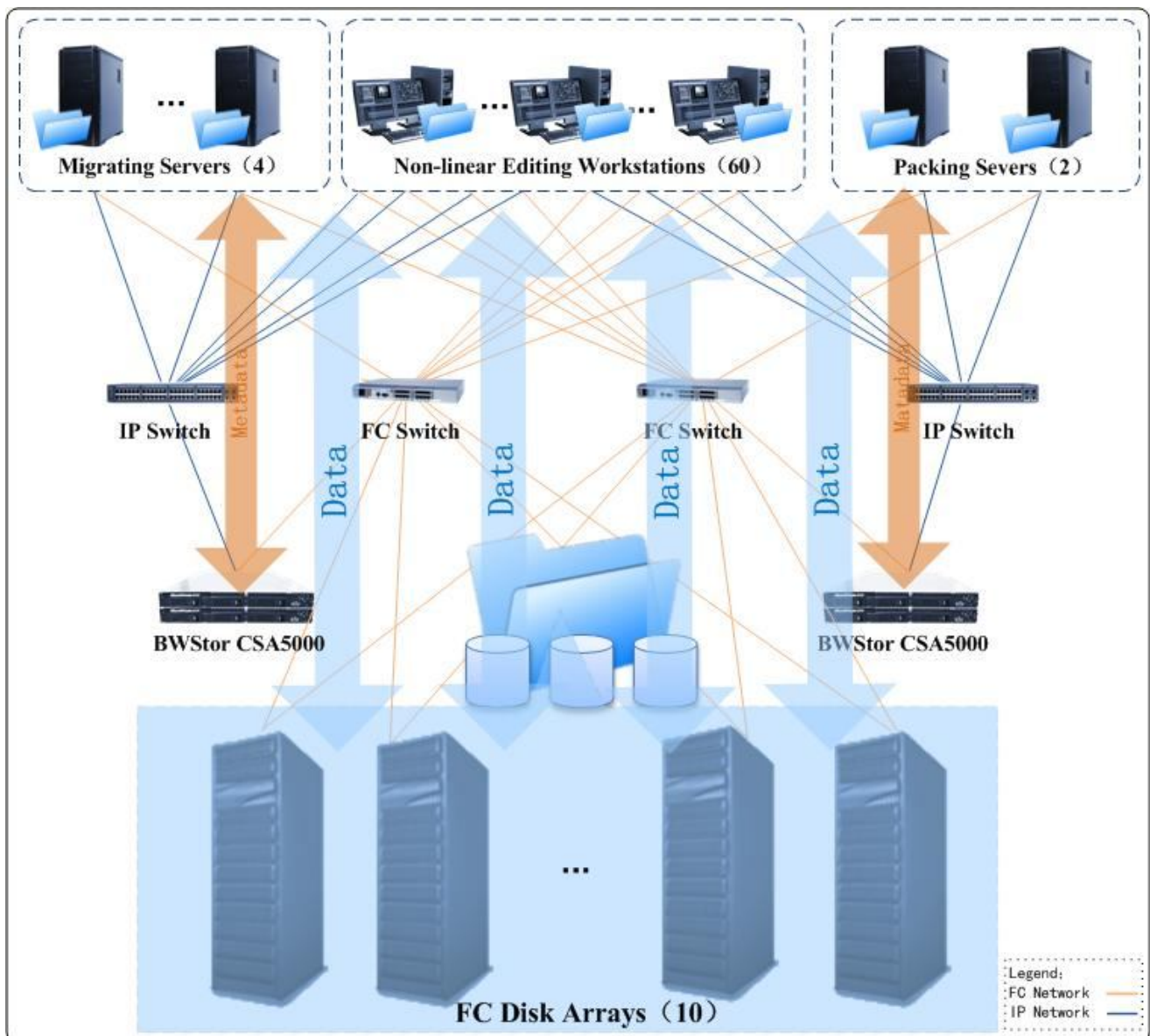
JSTV has reconstructed its entire network including the collecting, production, audio, advertising and news networks to meet the need of its growing business, especially to satisfy rising requirements for the non-linear editing data storage capacity and performance.

The production network is designed to help multiple departments, including four channels of JSTV and the general editing office, produce and polish programs. In addition, it is responsible for movie review, dubbing and program output jointly with the audio, advertising and news media assets networks. The production network must have strong concurrent reading and access capabilities, reliability and high cost-effectiveness.

### Solution

To satisfy these requirements, the solution provides two BWStor CSA5000 storage systems to offer file sharing and storage services, one for SD program production and one for HD program production. The server system comprises 4 HP 380G7 servers. The front-application server of the SD and HD non-linear editing workstation comprises 60 HP XW8600 servers, 4 migrating servers, 2 packing servers, 1 NAS sharing server and 2 technical reviewing servers. The storage network includes the optical fiber network and Ethernet and comprises 3 Brocade 5000 switches, 1 Brocade 5100 switch, 1 Brocade 300 switches and 2 Cisco 3750E switches, forming the network exchange core through cascade and partial redundancy. Only a small part of the metadata is transmitted through Ethernet, with the majority transmitted through the FC network. FC storage disk arrays form the back-end storage system, including 10 Infortrend ESVA F20-1830 header and 14 Infortrend ESVA J20-130 expansion units.

The two BWStor CSA5000 systems group all the FC disk arrays into two namespaces for the SD and HD production networks respectively. On each production network, application servers can share files without copying them from one to another. It realizes cross-server sharing and editing within a network, improving the SD and HD video editing efficiency. During data access and editing, the front-end application server can directly access and edit data from FC disk arrays through the optical fiber cable, thus giving full play to the high performance and low delaying of the optical fiber network and disk arrays.



## Application performance

BWFS CSA5000 system that centers the BWStor CSA has been proven reliable through strict testing and practical use with the following features:

1. High bandwidth. By integrating FC disk arrays, BWStor CSA5000 substantially expands the actual bandwidth of the storage network to 1.4GB/s from 700MB/s. The expanded bandwidth helps the storage network satisfy the requirement of booming businesses, especially the storage of mass HD videos, for large storage and network capacities of the HD production network.
2. Low latency. Due to the BWFS and the latest out-of-band data transmission structure, the storage network has broken through the bottleneck of I/O bandwidth for the storage system when processing concurrent access. The I/O response time ranges between 10 and 15ms, outperforming the application system's requirement of 400ms.
3. Flexible and dynamic scalability. The storage system's disk arrays can be expanded flexibly and support third-party disk arrays of various brands. Front-end applications can remain unaffected during the volume expansion. The new storage devices will boost the entire bandwidth of the storage network.
4. Hardware redundancy. Each BWStor CSA5000 adopts the HA mode. The major and standby storage devices serve as the backup device for each other, thus realizing automatic switch between devices in case of any equipment failures. Moreover, module redundancy is applied to FC disk arrays using controllers and other devices, ensuring the storage system's proper functioning.
5. Convenience of management and maintenance. The storage system employs the WEB page management mode. Users can manage the storage file system on any computer in the network, including establishing file systems, dynamic distribution of storage spaces, discovery and increasing of equipment. In addition, the management interface provides the troubleshooting function for users to discover problems and bottlenecks of the network and maintain the system conveniently.