



Application Brief: Assured Real-Time Performance for Distributed Storage Synchronization and Replication

Premise: Anagran Fast Flow Technology™ enables delay-free distributed storage synchronization and replication at all times, with zero visible impact on other network applications.

Challenges: How to ensure zero-delay synchronization and replication for distributed storage over the WAN while maintaining required service levels for all other applications?

Solution: Add Anagran for sustained real-time synchronization and replication regardless of the volume or mix of other network traffic.

Distributed storage architectures minimize delay and storage content volume over the WAN by employing data synchronization technology. Data synchronization is the act of synchronizing a set of data between two or more devices and in many cases, remotely located from each other. After a first full backup is performed, only updated sets of data are transferred. Although synchronization traffic does not consume nearly as much bandwidth and time as a full backup replication, it still requires very high service levels albeit for a much shorter time period. Maintaining required low delay can be very challenging when traversing a WAN that is carrying a wide variety and high volume of other traffic. During times when data synchronization is active, other applications like VoIP or transactional data may also require protection from competing traffic.

Therefore, the key challenges are:

1. How to ensure that correct QoS service levels are given to the data synchronization traffic? And,
2. How to maintain the desired service levels for other applications at the same time?

Anagran addresses these distributed storage challenges with the FR-1000 flow manager, the world's first flow-based traffic manager capable of providing real-time storage synchronization and replication services at up to 10 Gbps while adding zero delay. With Anagran, individual flows are managed such that a set of flows, termed a Flow Class, can be applied a QoS policy. Specifically, storage synchronization flows can belong to a flow class that provides guaranteed minimal delay all the time, regardless of how much other traffic is on the network.

With a wide variety of applications running concurrently over the WAN, other traffic may pose a serious threat to the integrity of data synchronization and to each other. Consider the scenario as shown in Figure 1. Time-sensitive applications such as VoIP, video, and other interactive traffic may be running concurrently with applications that are not time-critical such as FTP and other bulk traffic. Left alone, contending traffic types will collide with each other during peak usage periods, causing network congestion. Adding Anagran flow managers protects WAN replication/synchronization data while also preserving appropriate service levels for other applications.

Assured QoS for ALL Applications:

With Anagran, data synchronization over the WAN can run concurrently with key delay-sensitive, business critical applications without concern for how those applications may be impacted. Voice calls continue with perfect clarity, video conferencing and HD Telepresence provide flawless video and audio, and latency-sensitive transactional applications complete without delay.

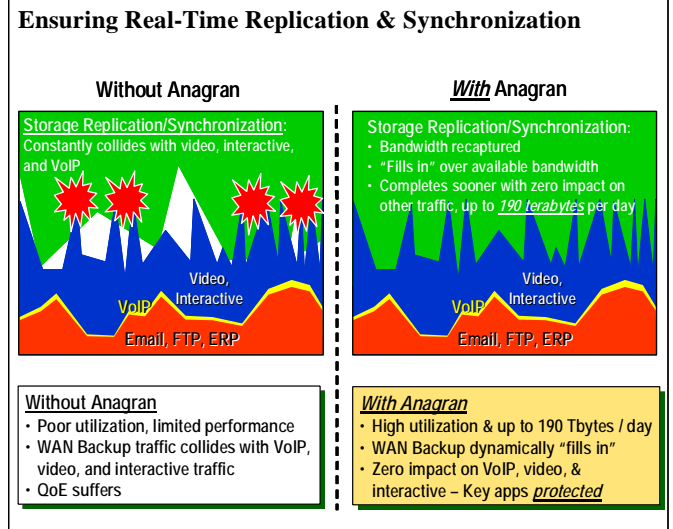


Figure 1. Enabling Assured Service Levels for Data Synchronization

Anagran allows any diverse mix of applications to coexist without the added cost of network build-out. Intelligent Flow Discard™ (IFD) automatically paces all traffic types at their ideal rate to ensure fairness and required QoE for all users. Assured Traffic classes reserve the assigned bandwidth for key traffic but only when needed. When there is no activity within an Assured Traffic class, the bandwidth is available for other traffic. This dynamic bandwidth allocation based on policies enables extremely high bandwidth utilization *and* protection for all key traffic types, including storage synchronization and replication. Behavioral Traffic Control™ (BTC) protects delay-sensitive streaming and interactive traffic even further if WAN backups continue over a prolonged period of time. The result is a much more efficient network that always delivers required QoE, regardless of which applications are running at any given moment.

ANAGRAN FEATURE SPOTLIGHT

Key Anagran Features That Enable Assured Service for Data Synchronization

Assured Traffic Class Feature:

- Reserves bandwidth to assure appropriate service levels
- Frees up bandwidth when not in use for other traffic

Intelligent Flow Discard (IFD) Feature:

- Optimally grooms entire traffic mix to maintain very high (90%+) utilization of available network resources
- Bulk traffic dynamically shrinks and expands to “fill in” per available capacity, protecting key apps

Behavioral Traffic Control (BTC) Feature:

- Adjusts and controls the rate of a flow class and allows for priority in servicing various traffic types
- Observes flow *behavior* and promotes or throttles select flows (e.g., Bulk, P2P) per policies

Conclusion:

With a simple network add-on device, Anagran ensures WAN replication/synchronization data integrity and service levels over the WAN while preserving QoS for other applications. In addition, by dynamically adjusting the bandwidth usage and freeing up the unused bandwidth for other traffic, optimal network efficiency is achieved *without adding delay*.

Anagran assures required service levels for distributed storage and ALL applications over the network.