



Application Brief: Tap the True Power of High-Speed Networks with Anagran!

Premise: Anagran allows more applications to run over high-speed networks with less delay and greater performance.

Challenge: How to *efficiently* run multiple applications over high speed networks like LambdaRail and Internet2?

Solution: Add Anagran to flexibly control and groom your entire high speed application mix without adding any delay.

Today's Internet cannot suit the speed and quality needs of the world's most demanding applications like spatial imaging, 4X HD video, geophysical simulation, and other supercomputing applications. For these applications, very high-speed networks such as the National LambdaRail and Internet2 are designed for the huge amounts of data and required real-time performance, from anywhere on the globe. These networks can allow demanding applications to operate over LAN-like speeds of up to 10 Gbps or more from end to end.

The Classic Dilemma: Speed or Efficiency? Choose Only 1. Traditional Layer 3 networks introduce too much processing overhead and delay to effectively provide LAN-like performance over the high-speed WAN. That is why to date; these networks are essentially Layer 2 "extended LANs", with applications normally running as separate serial "jobs" to ensure adequate network capacity and performance for each application as it runs. As a result, these networks tend to be extremely under-utilized, by up to 80% in fact, given the lack of insight and control of the overall traffic mix. Consider Figure 1, *High-Speed Network Without Anagran*.

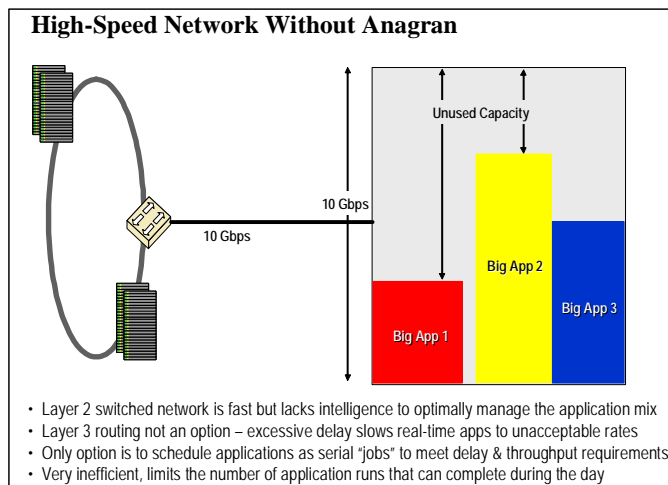


Figure 1: *High-Speed Network Without Anagran*.

In Figure 1 above, notice how much of the high-speed network capacity is unused. It is not uncommon for these networks to average only about 20% in overall utilization over time. The reason is that Layer 2 networks, while very fast, do not have the intelligence to dynamically manage the traffic mix to allow a

combination of applications to share the vast network resources at the same time. With Anagran, that severe limitation goes away.

A Networking First – High Speed AND High Efficiency: Simply adding Anagran Fast Flow Technology™ (FFT) into any high-speed network instantly adds the Layer 3 flexibility and control to manage any combination of high speed applications at any time *without adding delay*. It is the first advanced Layer 3 technology that adds zero delay while intelligently forwarding traffic. Consider Figure 2, *High-Speed Network With Anagran*.

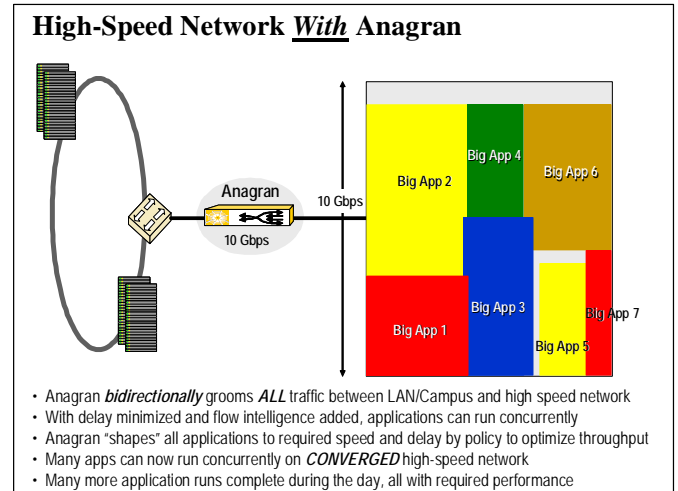


Figure 2. *High-Speed Network With Anagran*.

By maintaining keen awareness of all flows all the time while adding zero delay, Anagran products optimally pace each application in real-time based on available network resources. Intelligent Flow Discard™ (IFD) proactively rate-shapes each flow to its optimum performance based on which applications are currently running and how much network capacity is available. It can even invoke Call Admission Control (CAC) to ensure that the most demanding streaming applications like 4X HD video run only when adequate network resources are available

ANAGRAN FEATURE SPOTLIGHT

Key Anagran Features That Enable Optimal Use of High Speed Networks.....At Any Time

Delay-Less Architecture Feature:

- Proactive metering of only select flows forwards packets at wire speed with zero added delay

Dynamic Rate Control Feature:

- Extreme efficiency – Optimally paces all flows over "virtual channels" for high utilization without overload

Intelligent Flow Discard (IFD) Feature:

- Ensures required performance and fairness for the most demanding applications, including 4X HD video

Conclusion: Having access to the world's fastest networks is not of much benefit unless applications can take true advantage of the resource. By eliminating the classic Layer 3 delay barrier imposed by traditional routing techniques, Anagran's intelligent flow managers make networks like the National LambdaRail and Internet2 much more accessible for more applications, at any time.

Welcome to ACCESSIBLE, EFFICIENT high-speed networks!