

Consumer Communication Services

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Dilithium Networks: Breaking the Vicious Wireless Bandwidth Cycle

Background¹

As we noted in a column written for Tech Target, one of the unintended consequences of the introduction of smart phones with wide public appeal has been the significant increase in bandwidth demand.² As the experience of several carriers has demonstrated, there is nothing worse than to introduce a new smart phone and then have negative press ensue because the phones don't work as well as consumers were led to expect.

This situation illustrates a vicious circle that exists in the delivery of bandwidth intensive services: as services are deployed, the network is rarely provisioned in such a way as to accommodate those services. This has also been known as the stair step function for provisioning: demand exceeds capacity and then an incremental amount of new capacity is deployed that exceeds the demand. In this stair step function, demand and capacity are rarely matched, leading to inefficiencies in network deployment, variable quality of service with increased costs, and ultimately, unhappy customers. And, in the area of media intensive services, there has not seemed to be any way to get ahead of this cycle.

Now, however, integrated suites of hardware and software are evolving to help smooth this capacity–demand curve dynamic and break the bandwidth vicious cycle. One such is provided by Dilithium Networks.

Problem Addressed

Media intensive services, particularly those integrating video, are especially sensitive to network conditions. As traffic increases, artifacts of network congestion occur: jitter, delays, and in extreme conditions, drop outs and disconnects. For most wireless network operators, such situations can lead to extended periods of consumer discontent as network infrastructure is upgraded.

In particular, smart phones tend to increase the consumption of bandwidth as consumers adopt services such as streaming video or MMS services incorporating large media files. As smart phones proliferate, the overall impact on network performance can be dramatic. By some estimates, 3G cell site performance can be degraded by as much as 80% when a majority of the traffic it supports is to

¹ In preparing this report, Stratecast conducted interviews with representatives of the following companies:

- Dilithium Networks – Paul Zuber, CEO

Please note that the insights and opinions expressed in this assessment are those of Stratecast and have been developed through the Stratecast research and analysis process. These expressed insights and opinions do not necessarily reflect the views of the company executives interviewed.

² See: SearchTelecom Tech target column: http://searchtelecom.techtarget.com/tip/0,289483,sid103_gci1378171,00.html#

smart phone applications using streaming video. Until now, the solution was to increase site capacity or increase the number of cell sites. Both solutions tend to be capital intensive and slow to deploy.

Solution

Dilithium Networks, an infrastructure vendor with headquarters in Petaluma, California, has moved to address this issue with its Galaxy solution, incorporating both software and hardware to significantly improve the quality of service for multi-media services in a bandwidth uncertain environment. The Galaxy framework encompasses applications, media adaptation, and optimization.

The Galaxy framework for wireless operators incorporates four solution enablers:

1. VIVAS service and application creation platform (software located in the content server),
2. DTG multi-media transcoding gateway (a hardware platform located in the content delivery network),
3. Dilithium Content Adaptor (DCA) (software located in the content server), and
4. Dilithium Video Optimizer (DVO) (software located in web proxy server).

These components provide an end-to-end solution that allows media rich applications to create and deliver content to mobile devices, set top boxes, and laptops, to and from any network without the necessity of loading proprietary agents on those devices. The net result is a higher quality of service as well as a more efficient utilization of limited bandwidth.

In particular, the DCA (Dilithium Content Adaptor) simplifies and improves network performance by translating video on the fly from its source format to whatever format is desired by the carrier. The DVO (Dilithium Content Adaptor) manages bandwidth and optimizes the video stream within a given network environment. Combined with the DTG (Dilithium Transcoding Gateway) for circuit switched two-way conversational video; and the VIVAS solution, which can be used to create interactive and push video applications and streams; Galaxy is a framework that, according to Dilithium Networks, lives nicely in a variable bandwidth environment, without adding consumer-perceptible latency or latency variations (i.e., jitter).

Product Availability and Pricing

The Galaxy solution is available now and is typically sold through third parties. While no pricing is quoted by Dilithium, the nominal amount of infrastructure that the Galaxy solution represents is significantly less than any conceivable network upgrade involving cell sites or cell site improvement.

Stratecast The Last Word

Wireless network operators are dealing with an interesting problem when it comes to smart phones: too much success. As demand increases for these devices, they are finding their networks are constrained by the bandwidth they can deliver. Now, vendors such as Dilithium are moving to help break the vicious cycle of supply and demand that such popularity breeds. By providing a cost effective solution that allows operators to deliver acceptable service quality on existing networks, Dilithium's Galaxy solution is designed to improve the delivery of bandwidth intensive applications without the necessity of deploying new infrastructure immediately. This smoothes the capacity demand curve and improves consumer satisfaction.

While Dilithium is not the only vendor for such solutions (Cisco/Tandberg as an example) and is not a major player in the U.S. (85% of its market being outside the U.S.), it is nevertheless positioned quite nicely to take advantage of carrier needs as networks generally migrate to higher bandwidths and more intelligent end user devices.

Mike Jude

Program Manager – Consumer Communication Services

Stratecast (a Division of Frost & Sullivan)

mjude@stratecast.com

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