



S2io's 10 Gb/s Xframe — Beefing up the Backbone of Enterprise Computing

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Management Summary

Throughout history, business processes have been designed around the limitations of communication across an extended operation. From the point of view of the European businessmen underwriting sea voyages, the ships really did sail off the edge of the earth once they left the port, and the investment was a risky wager against incalculable odds. In more prosaic business circumstances, the routines of business have been optimized around the arrival of the mail, whether by ship or stagecoach. The institution of the pony express and, later, the transcontinental railroad cut delivery times in half and changed how businesses could partner and expand.

Telephone, telegraph, e-mail, and now instant messaging have sped the pace of business – but when these media were considered to be ephemeral and unauditible, business workflows were still designed around a paper trail. Now enterprises save and document e-mail, and their emulation of the serial nature of the paper trail is evolving to overlay structures, due in large part to time and money benefits of self-service by multiple participants. **An occasion of process redesign is at hand.**

But wait! **There is another *pony-express* moment coming down the pike in the form of 10 Gigabit per second Ethernet connectivity.** This connectivity is not just bigger, but promises to be more manageable as well. No longer will systems underutilize their connectivity due to fear-of-overload. **The effect of a truly fat pipe on enterprise business processes should be considered now, even if the impact will not be felt directly by your enterprise until the costs come down from initial pricing.** Consider how you would architect the following, if bandwidth were not a problem.

- **Field Support:** What analytic and presentation support does your sales and service force need that you have not been able to provide because of the connectivity constraints of one and two gigabit?
- **Productization of R & D efforts:** How could fat pipes involve more shareholders to add more speed and focus to the process?
- **Enterprise cohesion and governance:** Travel is expensive, and meetings are intrusive and not equally useful to all participants. Have your conferencing and voice options been constrained by thinking only in terms of one or two gigabits per second?

If you are thinking about these and other processes (and who is not), you should check out the possibilities of what S2io's 10 Gb Ethernet Network Interface Card (NIC) can do. As a niche player, they will tell you more sooner than Intel, who will wait for the market to mature. Read on – and decide how long you are willing to wait for the benefits of 10 Gigabit Ethernet.

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Pervasive Enterprises Need More

In a future of integrated business processes and pervasively-accessible data, there will be far more interaction coursing through the cables of enterprise information systems. Even with the first generation of PCI-X busses (and the second is coming soon), NAS arrays could move data at 6-7 GB/s, if the connectivity could carry it. Within the data center, server consolidation, partitioning and virtual machines already create significant contention for access to server memory. And with increasing acceptance of utility, *pay-per-use*, pricing as a way to rationalize the costs of IT, metrics of that usage must be generated and transmitted every minute of the 24-hour day. To top it off, enterprise use of Voice over IP systems (VoIP) to replace aging PBX systems can dump another mass of messaging on the often-busy pipes.

S2io's 10 Gb/s Xframe NIC

The answer to these challenges is beefier connectivity. 10 Gb/s is the heft that is rumbling into view. A better answer is connectivity that is better as well as bigger. S2io Corporation's *Xframe* network interface card (NIC) can provide just that.

- Any 10 GB/s NIC can aggregate ports, lowering port counts, and the complexity of the fabric connecting servers. S2io's Xframe NIC has the ability to partition the bandwidth into paths (both hard and soft partitions) and to optimize those individual paths to a guaranteed deliverable Quality of Service.
- With the move by many enterprises to utility computing, pervasive and granular metrics are key to prompt fault isolation and the competitive prices afforded by high utilization. S2io Xframe's ECC capabilities insure that any faults in the line can be both noted and dealt with transparently.
- Xframe can also offload TCP/IP and other key protocol processing.
- Memory Access interrupts are a normal part of data processing, but they can cause problems in consolidated

environments. Xframe supports several interrupt-scheduling schemes, including MSIX, which has been adopted by the PCI-SIG. It supports 64 interrupts used by operating systems.

- Xframe's environmental impact (power, thermal and EMI) is low. As an example, Xframe uses only 17 watts (the PCIX spec maximum is 25), and its airflow is NEBS-compliant.

Conclusion

10 Gb/s Ethernet is not the overkill that it may seem right now when the specification is brand new and early implementations seem expensive. 10 Gb/s Ethernet is the next big wave — one that enterprises will use to take their computing efficiencies to a whole new level. Networks will still have to be built with latency in mind, but business processes need not be bound by the bulkiness of large data transfers.

It is time to start thinking about how 10 Gb/s will allow you to evolve your enterprise, and to plan when to hop on the descending price curve of adoption. You may find it sooner than a long term consideration.



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