

A Challenge for Business
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For the better part of 20 years, the Internet (capital I) and its underlying design and specifications has been the de facto “data dial tone” of the planet. The large global ecology of businesses which provide products, services, employment and derive profits from supporting this infrastructure, combined with the social and funding dynamics of the research community, has resulted in the ossification of worldwide network infrastructure at a time so early in its adoption that new applications are becoming increasingly expensive and time consuming, and in some cases impossible, to deploy.

A new approach to understanding and designing networks has emerged, called PNA, as described in *Patterns in Network Architecture* by John Day. It offers a clear framework within which network architectures and implementations can be analyzed and designed, replacing the present ad-hoc and piecemeal design methodologies currently being practiced. In order to fully realize the vision of this new approach, network architectures must be designed that do not rest upon the current fabric of the Internet Protocol (IP) that is considered by many to be immutable and universal. PNA has serious and positive implications for the design of highly secure and configurable networks that support a robust hierarchy of product and service vendors.

History provides some perspective. The late 19th century saw an infrastructure transition from DC to AC power transmission that involved technical, social and business factors. The well-funded, business savvy and ruthless Thomas Edison was initially successful in convincing interested parties to deploy his DC power transmission technology. Nikola Tesla, hampered by a combination of Edison’s early start and awareness of business issues, and his own social awkwardness and idealism, watched his more versatile AC power transmission designs languish until the technology eventually spoke for itself.

More than 100 years later, we have greater awareness of the coupling between the scientific, engineering, business and social forces that result in the adoption or languishing of technical innovations. It is often difficult to see how both personal and institutional motives influence the direction of both research and product development, but we owe it to ourselves to stand on the shoulders of our predecessors in order to both see how we got to where we are, and to see the options of where we can go.

The challenge to business is to:

- Suspend disbelief long enough to analyze, implement and test the architecture
- Ask your colleagues to take a fresh look at their assumptions about networking
- Deploy the architecture to support emerging needs that stress the old IP network
- Build a new ecology of vendors developing products that leverage PNA