

Title: The Service-Infrastructure Cycle, Ossification and the Fragmentation of the Internet

Abstract:

In this talk I will first argue that a Service-Infrastructure Cycle has been fundamental to networking evolution. Four decades-worth of iterations of this Cycle have yielded the Internet as we know it today, a common and shared global networking infrastructure that delivers almost all services. I will further argue, using brief historical case studies, that success of network mechanism deployments often hinges on whether or not mechanism evolution follows the iterations of this Cycle. Many have observed that this network, the Internet, has become ossified and unable to change in response to new demands. However, novel service requirements and scale increases continue to exert significant pressure on this ossified infrastructure. The result, I will conjecture, will be a fragmentation, the beginnings of which are evident today, that will ultimately fundamentally change the character of the network infrastructure. By ushering in a ManyNets world, this fragmentation will lubricate the Service-Infrastructure Cycle so that it can continue to govern the evolution of networking. I will conclude with a brief discussion of the possible implications of this emerging ManyNets world on networking research.