

Named Data Networking  
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The Internet is rightly counted among mankind's engineering marvels. Most aspects of modern life—communications, commerce, entertainment, education, and the scientific enterprise—have been transformed and are now fundamentally dependent upon a stable, trustworthy Internet. While an overwhelming success, the Internet's design has long-acknowledged limitations and drawbacks—such as computer address shortages and inherent security flaws—which threaten its future utility.

Named Data Networking (NDN) is a new Internet architecture that capitalizes on the strengths and addresses the weaknesses of the current Internet. NDN identifies the Internet's root problem: its host-based, point-to-point communications abstraction is no longer a good match for how people and machines communicate. Nearly all modern communication is web-based and consists of requests for named data. Today's Internet is based on host-to-host connections. NDN is a general-purpose network protocol built on requests for named data. By aligning the communication abstraction with how people and machines actually communicate, NDN can naturally accommodate security & privacy, arbitrary numbers of connected devices, and the efficient utilization of underlying communications resources. The NDN project in the US studies the technical challenges that must be addressed to validate NDN as a future Internet architecture: routing scalability, scalable forwarding, trust models, network security, content protection and privacy, and fundamental communication theory.

In this talk, Prof. Crowley will motivate the NDN design, outline the research agenda currently being pursued, describe the growing, global industrial and research community forming around NDN, and demonstrate a collection of real-world NDN-based applications and services operating in a wide-area, large-scale environment.