



*Your source for top tier IP wireline and wireless expertise translated  
into positive business results*

# SIMPLICITY

\sim-'pli-sə-tē

The Simplicity Principle...states that complexity is the primary mechanism which impedes efficient [network] scaling, and as a result is the primary driver of increases in both capital expenditures (CAPEX) and operational expenditures (OPEX). The implication for carrier IP networks then, is that to be successful we must drive our architectures and designs toward the simplest possible solutions (RFC 3439, attributed to Mike O'Dell, former Chief Architect at UUNET).

## WHO WE ARE

Brooks Consulting is a wireline and wireless Internet Protocol (IP) consulting firm based in the metro DC area. Jeff Loughridge, an accomplished member of the IP networking community since 1997, founded the firm to help clients eliminate the unnecessary complexities in offering IP-based services. Our mission is to be a trusted partner in enabling your IP infrastructure to meet the needs of your business.

## WHAT WE DO

Brooks Consulting provides network design and implementation services to clients who stand to benefit from IP network simplicity and Tier 1 best practices. We please our clients by helping their businesses to decrease deployment cycle times, to understand the network cost structure and other high value information, and to enable transparent IP infrastructures focused on business value.

Brooks Consulting's services run the gamut in wireline and wireless IP networking. From network design to training NOC staff, our commitment to execution will position your business for success. We specialize in IPv6 deployment and transforming Mobile Internet networks to a true IP-centric model.

## WHAT WE BELIEVE

At Brooks Consulting, we are committed to establishing confidence-based relationships with our clients, to highly ethical consulting, and to promoting the business value derived from simple wireline and wireless IP networks.

## BROOKS CONSULTING'S SERVICES

Tier 1 ISP Best Practices - The highly competitive marketplace for IP services requires a provider—wireless or wireline—to be extremely efficient, standards reliant, and agile. Providers that do not have these traits will experience scaling difficulties, longer time-to-market, high customer turn-over, and an assortment of day-to-day challenges that inevitably come with sub-standard network configurations, policies and procedures. The world's largest providers have over sixteen years of experience in operating and maintaining IP networks. Their collective experiences have led to best practices that are almost standardized across the major players. Whether you are starting a network from scratch or seeking to improve an existing one, Brooks Consulting can show you how to employ industry best practices to position your organization to meet its business objectives.

Mobile Internet Core Design & Deployment - In contrast to previous wireless data networks, IP is a fundamental component of 4G wireless networks. Brooks Consulting has experience in 3GPP, 3GPP2, and WiMAX networks. We specialize in the design, deployment, and capacity planning of the IP Core and backhaul of wireless infrastructure.

IPv6 Deployment and IPv4/IPv6 Transition Technologies – The time remaining to claim new IPv4 address space has nearly ended. Transitioning to IPv6, the next generation Internet Protocol, is critical from a business continuity perspective. Brooks Consulting can enable your IP infrastructure for IPv6 and establish the appropriate transition mechanisms to protect your existing investment.

IP Network Design – Brooks Consulting firmly believes in designing simple networks. By using design simplicity, superfluous features and hardware are eliminated and you are well positioned to realize a minimal cost per bit. Simply designed IP networks exhibit the following properties.

- Easy to build, maintain and operate
- Rely on standard, repeatable implementations for scaling purposes
- Enable flexible responses to technology advances
- Optimize redundancy and survivability

Complexity is the enemy of network design. It is the primary driver of OPEX and CAPEX. Contact Brooks Consulting for development of IP network designs that reduce or eliminate network complexity.

Network Technology Introduction – The explosion in bandwidth presents scaling challenges to expanding networks. Technologies that were first implemented in service provider networks are often needed to grow the network. Some examples include the following.

- Carrier-class routing equipment
- Graceful Restart and Non-stop Routing
- IPv6
- BGP, IS-IS, OSPF, and OSPFv3
- MPLS and MPLS/VPN
- 10G and 100G Ethernet

Brooks Consulting will work with your engineers and management to successfully migrate to new technologies as needed.

MPLS/VPN Design & Implementation – MPLS/VPNs allow enterprise customers to move away from frame relay and private line network to an all-IP network while maintaining the security derived from a private network. Enterprise customers can realize significant savings in migrating without needing significant training for their IT staff. The complexity of routing and Quality of Service is off-loaded to the provider. Whether you are a customer looking to migrate to an MPLS/VPN service or a service provider preparing to offer MPLS/VPN service to your customers, Brooks Consulting is your source for designing and implementing cost effective and highly available virtual private networks.

Quality of Service (QoS) Assessments – Ensuring that your network can reliably deliver packets is vital to businesses. Unsure of what is happening on your network or worried about network performance? Let Brooks Consulting analyze your network for potential bottlenecks and implement the necessary mechanisms to maximize the performance of your infrastructure.

ISP Selection – Companies seeking connectivity to the Internet have a myriad of options for carriers and connectivity type. Brooks Consulting will partner with you to minimize your IP connectivity costs by finding the providers that meet your budgetary and network design requirements

## ENDORSEMENTS

*Jeff worked for me as a consultant for roughly 1 year and exceeded all my high expectations. Jeff was brought onboard to help us design, engineer, and operate our vast IP network. He possesses the rare skill of not only being a big picture person, but also has the deep technical expertise to hash out the details and execute. Jeff is skilled in shepherding organizations through the challenges of the migration to all-IP networks - both from technical and personnel perspectives. I would welcome Jeff back into my organization in a heartbeat, and recommend him with top praise.*

Kevin Luu  
Director, IP Operations  
T-Mobile USA

*Jeff worked with Clearwire during early 2009 and provided senior technical leadership during a challenging merger. His skill at bringing together disparate groups and leading projects allowed early success on critical projects. During this time Jeff was a crucial resource for me in working effectively with the assets and processes of the merged company. His attention to detail, follow through and well developed relationships shortened project cycles and enabled the company to save tens of thousands of dollars in redundant costs. Jeff, I believe, is capable of handling issues both wide in scope and deep in technical depth which should serve him well in any situation he wishes to apply himself. He has my recommendation.*

Eric Houston  
Director, Core Network Engineering  
Clearwire

*Jeff Loughridge of Brooks Consulting did an excellent job for me in explaining and documenting enterprise IP HD video conferencing network design concepts. He was able to draw on his "in the trenches" experience in working with the IP networks of a major vendor [Sprint] to conceptually describe in very clear terms the roles of network elements and systems as well as approaches to augmentation of IP networks when substantial amounts of HD video conferenc-*

*ing traffic is added. It is apparent to me that he also has the knowhow to advise clients in detail on actual upgrade and management of enterprise IP networks to handle HD video conferencing traffic. I recommend him highly.*

Howard Wallace  
Principal  
Wallace & Co. LLC

## FOUNDER'S BIO

Jeff Loughridge is principal consultant and owner of Brooks Consulting LLC, a firm that helps clients reap the benefits of simplicity in design, deployment, capacity management, and operation of IP networks. He has worked with clients such as Clearwire, Cisco, and T-Mobile USA.

Jeff has spent over thirteen years in the IP networking. Before founding Brooks Consulting LLC, Jeff held engineer and management positions in Operations, Design, and Engineering groups in his ten years at Sprint. Jeff was a regular speaker at Sprint's Executive Briefing Centers throughout the U.S. His most significant contribution to the company was leading the effort to deploy 40 Gb/s IP over DWDM on the SprintLink backbone in 2008.

Jeff earned a bachelors degree in computer science from Duke University (1998) and an MBA from University of Phoenix – Northern Virginia Campus (2004).



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