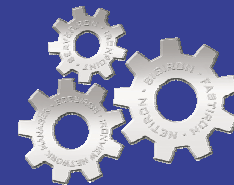




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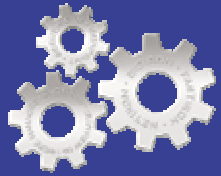


Application Intelligent IP Networks for Highly Available, Scalable and Secure Content, Commerce, and Communication Services

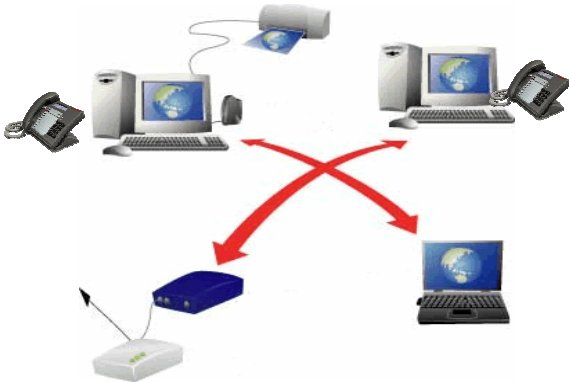
Gopala Tumuluri

Foundry Networks, Inc.

www.foundrynet.com



Key Business and Application Trends

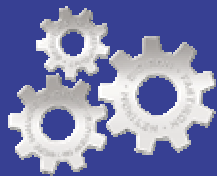


- **Convergence (Triple Play)**
- **Mobility**
- **On-line Business**
- **Web-enabled Enterprise**

Ubiquity and Reliance on Web, VoIP and IP Applications are Driving Demand for:

- **Highly Available**
- **Secure**
- **High Performance**
- **Scalable**

Infrastructure



Key Challenges of Content, Commerce and Communication Services

Availability Challenge

- ❁ Network Level Resiliency \neq Service Availability
- ❁ Application, Server and Data Resilience Needed

Security Challenge

- ❁ Growing Sophistication and Speed of Attacks
- ❁ Hosts, Servers and Applications Ill Equipped

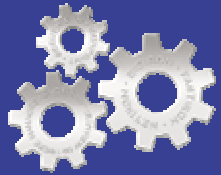
Performance Challenge

- ❁ Application Intelligence Conflicts with Performance
- ❁ Evolving Applications = Increased Data Volume

Scalability Challenge

- ❁ Growing Users and Evolving Service Demands
- ❁ Applications Get Richer and Security Threats Grow

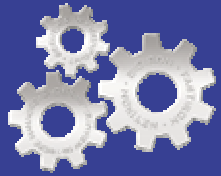
Marriage of Application Intelligence and High-Performance Networking is Key to Solving these Challenges



High Availability and Scalability

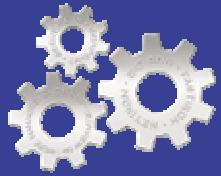
IP Service Resiliency and Multi-Site Redundancy

- ❁ **High Availability and Scalability for Web, VoIP and IP Services Requires Server Farm and Multi-Site Infrastructure**
 - Server Farm of Commodity Servers with Network-Based Application Health Monitoring and Traffic Management
 - Multiple Servers and Data Centers for Service Scalability, Localization and Resource Optimization, Redundancy and Business Continuity
- ❁ **New and Emerging Threats (Including Terrorism) Forcing Enterprises to Make Multi-Site Redundancy a Requirement**
 - Intelligent DNS Directs Users to Sites Based on Health, Location and Ability
 - Intelligent IP Route Injection to Re-Route Traffic to Alternative Data Centers



Performance – Application Acceleration in the Network

- ❁ **Application Evolution, and Growing Users and their Expectations Contribute to Perennial Performance Challenges**
 - Throwing Unlimited Server Resources is Not a Solution
 - Cost, Space and Complexity will Catch Up Soon
- ❁ **Network-Based Application Acceleration Helps Gain Upper Hand**
 - Secure Web Performance Acceleration with SSL Termination
 - Web Compression to Optimize Bandwidth and Reduce Download Time
 - HTTP Multiplexing to Offload Servers from TCP Connections
 - Content Aware Traffic Mgmt. to Route User Requests to Right Resources
 - Applications-Specific Content Routing Intelligence for Web, VoIP/SIP, DNS, FIX



Application and Data Center Security

Protection without Performance Sacrifice

- ❁ **Servers with Standard OS Implementations are Highly Vulnerable**
 - Increasing Network Speeds Give Inherent Advantage to Attackers
 - Even Simple Attacks Easily Take Down Servers
 - Patching and Protecting is Too Slow and Ineffective when Under Attack
- ❁ **Defeating Attacks in the Network Ensures Critical Server Resources are Spared for Legitimate User Traffic**
 - Network-Based Protection is Efficient, Cost-Effective, and Quick to Deploy
 - Hardware/ASIC Approaches Protect without Sacrificing Performance
 - Beware: Some Network-Based Solutions are Simply Servers in Network;
 - Content Filters and Policy Enforcement Defeat Application Layer Attacks
 - Example: Web, SIP/VoIP and DNS Filters



Summary

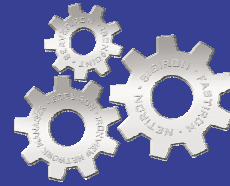
- ❁ **Marriage of Application Intelligence and Network is a Key Trend**
 - High Availability, Scalability, Performance (Quality) and Security Benefits

- ❁ **Embedding Application Intelligence into the Network Requires Customizing Network Behavior for Service Transaction Model**
 - Solutions Must Understand and Conform to Application Transaction Model
 - Web Services use Client-Server Model
 - VoIP Services Use Client-Client Model with Server Mediation

- ❁ **Application Networks have a Key Role to Play in Future IP Services**
 - Goal is to Make Applications Run @ Network Speeds; Not the Other Way
 - Balance Needed in Splitting Functionality between Network and Servers



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Thank You

Q & A