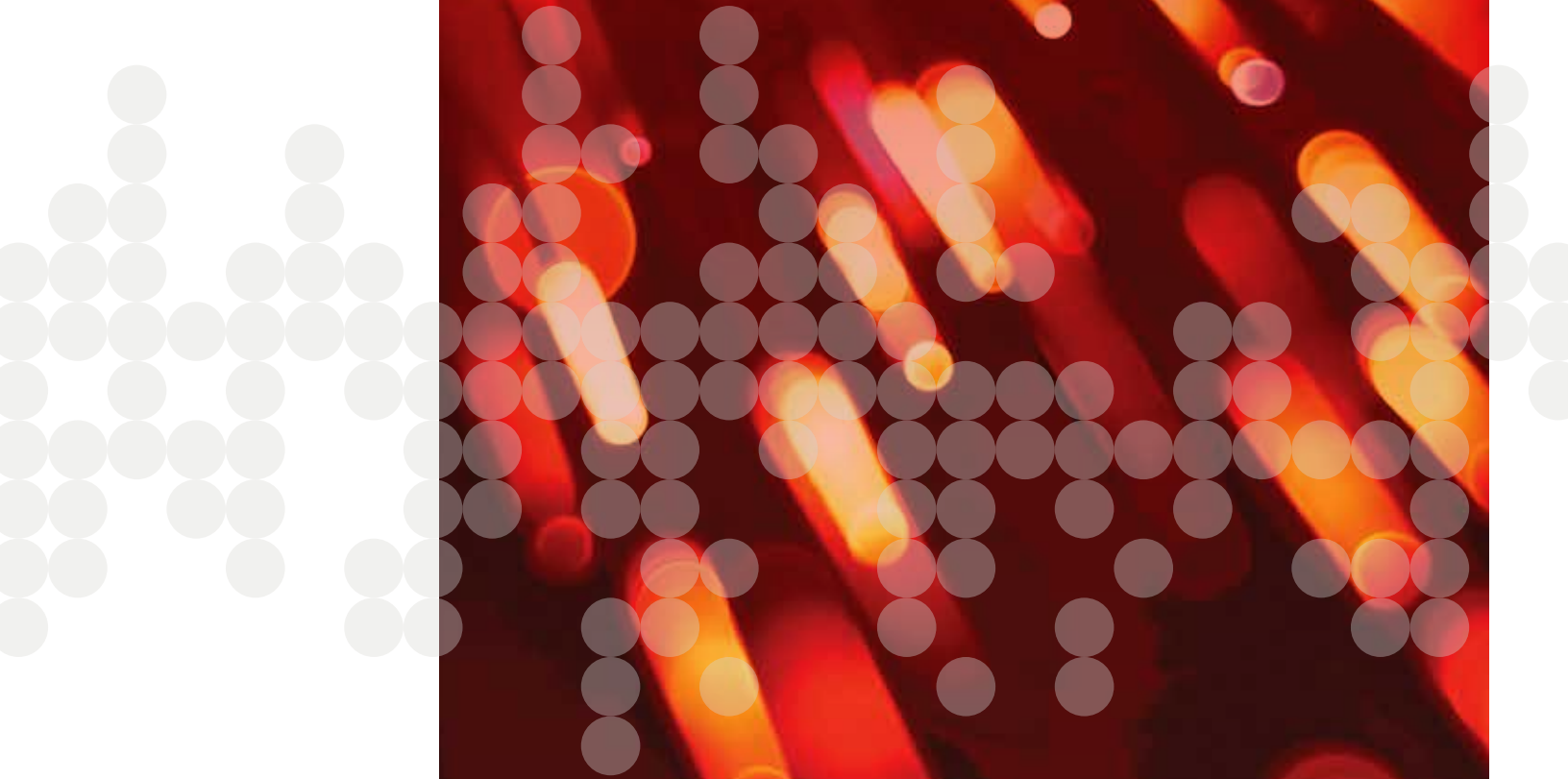




OPTIMIZE. MONETIZE. SECURE.

Agile, scalable network solutions
for service providers.





F5 has innovated to help operators by embracing virtualization for the key elements of its portfolio, and by enabling its solutions across a wide range of service automation frameworks.

—Paul Parker-Johnson
Practice Lead, Cloud and Virtual System Infrastructures
ACG Research

INTRODUCTION

The telecommunications industry is facing explosive growth in the numbers of connected mobile devices, both in terms of the volume of total data usage and increasing demand for new subscriber applications and services. The number and sophistication of security threats to networks, applications, and user data is also dramatically increasing. These challenges can keep you up at night—or, they can provide an opportunity to strengthen customer loyalty, reputation, and profits.

As an industry leader for 20 years, F5 understands the complexity of your business. F5 solutions are built to help you optimize your network, monetize new services, and secure every layer of your network infrastructure. F5 delivers unparalleled performance and availability, a remarkably lower TCO, and multi-layer security to 48 of the Fortune 50 companies¹—as well as all 10 of the world's largest mobile operators.²

F5's broad portfolio of products and services gives you the security, agility, and flexibility to support new devices and deliver critical applications, as well as detect and resolve threats to your networks, applications, and user data. With F5, you can increase profitability, protect your brand, and secure against next-generation attacks.

¹ <http://fortune.com/fortune500/>

² <http://www.rcwireless.com/20140924/carriers/worlds-largest-mobile-operators-tag2>

OPTIMIZE YOUR NETWORK

WHAT'S THE BEST WAY TO ENSURE PROFITABILITY WHILE SATISFYING CUSTOMER DEMANDS?

By driving optimization across your network and efficiently managing data, bandwidth, and signaling traffic growth—all with the agility to securely deliver new services in hours or days, instead of months or years.



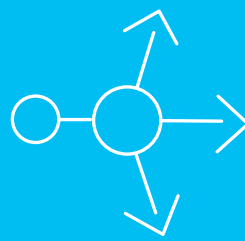
10:1

FOOTPRINT



80%

POWER REDUCTION



7x

SCALABILITY GROWTH

F5 helps you to reduce network complexity, simplify network architectures, and consolidate a broad range of functions and management components into one simple platform. With F5's suite of data and signaling traffic management solutions, you can scale to meet increases in network demand, while maintaining blazing-fast network performance.

F5's TCP Optimization solution helps you increase efficiency and significantly improve performance across your entire network, while providing a high subscriber quality of experience. And with F5 policy management, you can gain advanced insight into network traffic and implement policies to optimize traffic on a per-subscriber or per-application basis.

F5 products include a programmable open API you can use to improve network flexibility and increase agility so you can deploy services faster than ever.

In short, F5's solutions enable you to increase network efficiency and achieve cost-effective delivery of the high-quality services your customers want. F5 does this all at massive scale, supporting the highest connection rates and levels of concurrency in the industry.

Our F5 solution enabled 10:1 footprint consolidation, 80 percent power reduction, and 7 times the scalability growth of the incumbent solution.

—ITC Manager at Tier-1 Mobile Operator

MONETIZE NEW SERVICES

HOW CAN YOU GENERATE NEW REVENUE STREAMS IN TODAY'S COMPETITIVE ENVIRONMENT?


By delivering feature-rich, context-aware applications and subscriber services.

F5 can help you create new business and revenue models based on subscriber behavior and comprehensive analytics. This helps you achieve higher ARPU and profitability by rapidly building and deploying services tailored to subscribers' application usage, traffic classification, and usage patterns.

F5's fully virtualized, carrier-grade network architecture reduces your dependency on inflexible hardware and enables a more dynamic, flexible, and agile network. You can rapidly test and deliver a variety of personalized services before deploying to an entire customer base, as well as manage the rapid growth of new data and traffic—all while increasing network efficiency and security.

F5 solutions also enable revenue-generating services, including: parental controls, enhanced security services, shared data plans, application based charging, Voice over LTE (VoLTE), IoT, URL filtering, and content insertion.

All of these solutions and services can help you take advantage of new market opportunities and grow new revenue streams.



We are able to offer our customers a higher quality of experience... with a reduction in latency, due to F5's DNS caching capabilities.

—Barry Kezik
General Manager Network Planning and Engineering
Vodafone Australia

SECURE AGAINST ATTACKS

WHAT CAN YOU DO TO ENSURE A FAST AND EFFECTIVE RESPONSE TO SECURITY THREATS?

Proactively protect against attacks that degrade or shut down networks and reduce quality of service.

Exponential growth in the number of connected devices and subscriber usage has triggered massive change in the characteristics of network traffic. This presents an enormous challenge that will require mobile operators to build solutions that can both scale to support a very high level of connection rates and concurrency, and provide end-to-end security to user data and the network.

To answer that challenge, F5's solutions simplify security architectures while mitigating threats across network domains and applications with a single, unified software platform. This platform protects targeted network elements, DNS infrastructures, devices, and applications across layers 4 through 7. It also protects your core network elements, customer billing and provisioning systems, customer service applications, and other support infrastructure.

F5's carrier-class network firewall solution tracks the state of network sessions, maintains application awareness, and mitigates threats based on internal and external intelligence. DNS firewall services deliver a real-time, signed query response for attack protection, and mitigate complex threats by blocking access to malicious domains.

Securing next-generation networks requires both flexibility and agility. You can deploy applications and services across different network architectures and environments by leveraging both F5's purpose-built carrier-grade chassis and Virtual Network Functions (VNFs) in evolving NFV environments. As a result, you can achieve agility through fast service delivery.

F5's Tier-1 telecommunications customers have demonstrated success in detecting and resolving threats across networks, applications, and devices. Service providers can integrate F5's security solutions with custom IP intelligence feeds and external threat intelligence systems, and dynamically block threats across various network domains. These capabilities consistently enhance service quality, subscriber data, carrier reliability, and your overall brand.

F5 has always placed a strong emphasis on securing the application. We can now support large amounts of traffic on a daily basis and manage security policies, which reduces the overall complexity from our side.

—Keith Huang
Vice President of Product Management at PCCW

OPTIMIZE, MONETIZE, SECURE—WITH F5

10/10

WORLD'S LARGEST MOBILE OPERATORS RELY ON F5.

All 10 of the world's largest mobile operators trust F5 to help secure and simplify their networks, improve their quality of service, and increase profitability. F5 is in a unique position to help you manage today's telecommunication challenges with a broad portfolio of solutions that deliver carrier-grade services on a unified platform. With F5's platform, you can decrease time to market, reduce capital and operating costs, improve service delivery performance and security, and monetize your network services.

F5's BIG-IP family of products can be deployed as software modules on high-performance, programmable, purpose-built hardware platforms, or as virtual network functions (VNFs) on commercial-off-the-shelf (COTS) hardware.

BIG-IP MODULE	VNF
BIG-IP® Advanced Firewall Manager™ (AFM)	Virtual Firewall (vFW)
BIG-IP® Application Security Manager™ (ASM)	Virtual Web Application Firewall (vWAF)
BIG-IP® Carrier-Grade NAT (CGNAT)	Virtual CGNAT (vCGN)
BIG-IP® Policy Enforcement Manager™ (PEM)	Virtual Policy Charging Enforcement Function (vPCEF) Virtual Content Insertion (vCI) Virtual URL Filtering (vURL Filtering)
BIG-IP® DNS	Virtual DNS (vDNS)
BIG-IP® Local Traffic Manager™ (LTM)	Virtual Application Delivery Controller (vADC)

For full interoperability with your network, F5 products comply with industry standards including:

- IPv6
- GSM4
- ETSI-NFV
- ICSA Labs Certification
- IETF
- NGMN
- OpenStack

F5 PARTNERSHIPS

F5 partners with many of the world's leading technology companies—including Cisco, ALU, and HPE—to deliver integrated solutions that help you bring new services to market faster. These partnerships also enable you to reduce network complexity and increase network performance in a rapidly evolving and complex environment.

SERVICES AND SUPPORT

We know that your main focus should be on your customers and their profitability—not system design and implementation. F5 offers a broad range of professional services, including: strategic guidance, architecture, design, solution migration, system deployments, security policy creation and deployment, system upgrades, performance testing, emergency response and troubleshooting.

F5's "optimize, secure, and monetize" approach addresses multi-technology, multi-vendor network complexity challenges. Its carrier-grade VNFs support service providers moving toward a virtualized next-generation network (vNGN).

—Glen Ragoonanan
Principal Analyst, Analysys Mason



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