#WANFreedom - Wipro's SDWAN Solution powered by Aruba EdgeConnect

Wipro's business-driven carrier neutral SD-WAN solution powered by Aruba EdgeConnect enables business intent automation, high quality of experience, and continuous adaptation with an unified platform for the enterprise.

Introduction

As modern workforces become increasingly mobile, ensuring availability of business-critical applications across multiple clouds is crucial. Traditional wide area network (WAN) architecture has been rendered obsolete due to the rising demand for cloud and Software as a Service (SaaS) applications, digitization of the remote office, entailing low-costs, and commodity broadband connectivity.

Modern enterprises face the following challenges in traditional WAN products:

- Customers are locked into long-term contracts as well as inflexible architecture

- Traditional WAN products lack native analytics, requiring additional products to be deployed in each remote office, thereby increasing cost and complexity

- Delivering essential branch services such as security and visibility require bolt-on point-products to be deployed and managed, adding cost and complexity to the organization

- Legacy WAN products were designed with focus on data center connectivity using complex routing protocols

- Managing heterogeneous connectivity increases WAN costs and yields poor circuit utilization

- Deploying SaaS and UCaaS applications is challenging as there is prioritization of voice, video, and business-critical applications over a non-MPLS network with poor support from traditional WAN products

Today, enterprises need a WAN solution that delivers applications from the cloud, SaaS, and data centers over any combination of underlying transports including MPLS, LTE and broadband, while enforcing performance, security, and compliance policies. **Transformation from a data center centric MPLS based WAN to cloud first optimized SD-WAN is needed.**

To meet the demands of the modern enterprise, the network must evolve from a decades old packet-routing model to an application fabric approach. With the application fabric approach, the network is built using application policies that directly capture business and IT intent and uses deep application and network analytics to dynamically self-heal, delivering rich application experiences to remote offices.

The market drivers ushering widespread adoption of a Software-Defined Wide Area Network (SD-WAN) include:

Applications moving to cloud with multi-cloud topologies replacing traditional data center topology
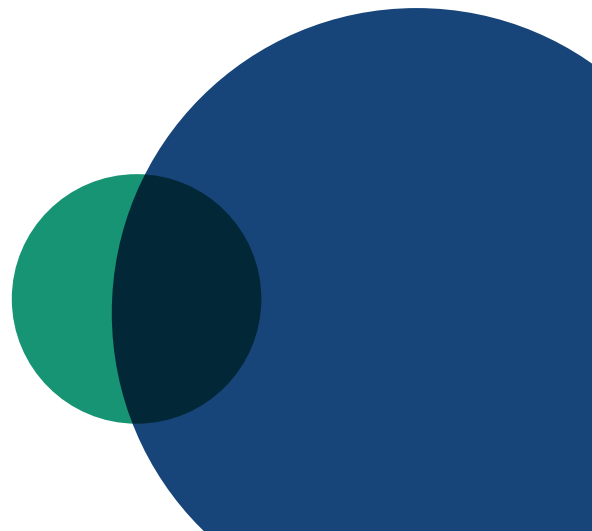
Hybrid WAN and secure edge

Application SLA over any transport

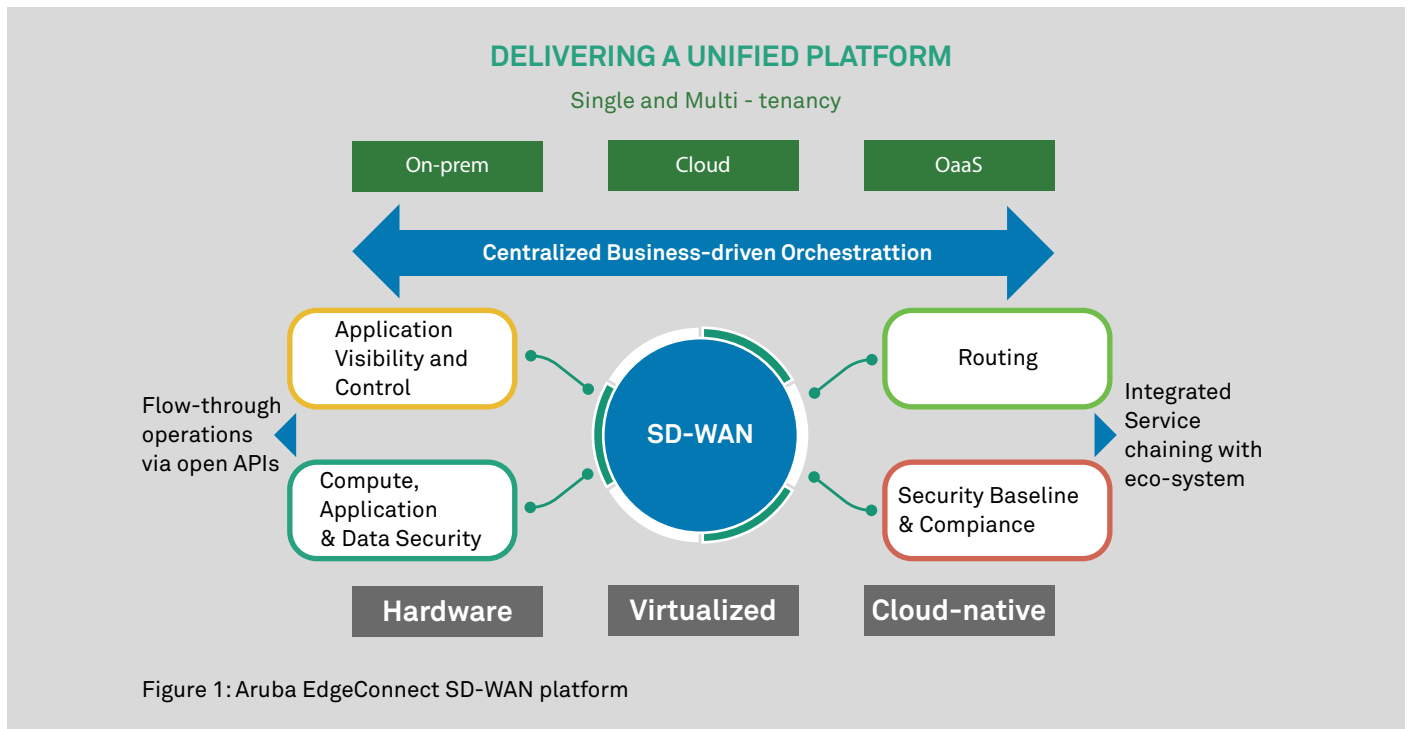Network hardware and software decoupling

An explosion in the IOT and other devices in the network

Wipro #WANFreedom powered by Aruba EdgeConnect

Wipro's #WANfreedom powered by industry leading SD-WAN solution from Aruba EdgeConnect enables a true business driven, carrier neutral SD-WAN.

DELIVERING A UNIFIED PLATFORM

Single and Multi - tenancy

On-prem · Cloud · OaaS

Centralized Business-driven Orchestrattion

Application Visibility and Control

Routing

Flow-through operations via open APIs

SD-WAN

Compute, Application & Data Security

Security Baseline & Compiance

Integrated Service chaining with eco-system

Hardware · **Virtualized** · **Cloud-native**

Figure 1: Aruba EdgeConnect SD-WAN platform

Aruba EdgeConnect platform

The Aruba EdgeConnect SD-WAN edge platform with First-packet iQ and Cloud Intelligence delivers the highest performance for the cloud first enterprise while protecting branch offices from unwanted threats and vulnerabilities. Aruba EdgeConnect SD-WAN edge platform enables enterprises to dramatically reduce the cost and complexity of building a WAN by leveraging broadband to connect users to applications. By empowering customers to use broadband connections to augment or replace their current MPLS networks, Aruba improves customer responsiveness, increases application performance, and significantly reduces capital and operational expenses by up to 90%.

Three components comprise the Aruba EdgeConnect SD-WAN platform:

• Physical or virtual appliances

(Supporting any common hypervisors and public clouds) deployed in branch offices to create a secure, virtual network overlay. This enables customers to move to a broadband WAN at their own pace, whether site-by-site, or via a hybrid WAN approach that leverages MPLS and broadband internet connectivity.

• Aruba orchestrator

Provides visibility into both legacy and cloud applications with the unique ability to centrally assign policies based on business intent to secure and control all WAN traffic. Policy automation speeds and simplifies the deployment of multiple branch offices and enables consistent policies across applications.

• Aruba boost

WAN optimization is an optional performance pack that combines Aruba WAN optimization technologies with Aruba EdgeConnect to create a single, unified WAN edge platform. Aruba Boost allows companies to accelerate performance of latency-sensitive applications and minimize transmission of repetitive data across the WAN in a single, unified SD-WAN edge platform.

Basic SD-WAN	Aruba EdgeConnect SD-WAN Platform
Dynamic path selection	Path conditioning
Sub-optimal performance of all aggregated underlying links	Tunnel bonding
Static active/standby configuration	Dynamic path control
Basic deep packet inspection (DPI) and port level approaches	First-packet iQ application classification
Irregular application updates	Cloud Intelligence
Rudimentary operational efficiency with increased latency	Microsoft O365 REST API integration
Inability to use the best available internet link in real-time	Intelligent internet breakout

Figure 2: Differences between basic SD-WAN and Aruba EdgeConnect SD-WAN Platform

Key features of Aruba EdgeConnect

- **Zero-Touch provisioning:** A plug-and-play deployment that can be deployed at a branch office in seconds, automatically connecting with other Aruba EdgeConnect instances in the data center, other branches, or through cloud Infrastructure as a Service (IaaS) such as AWS, MS Azure, Oracle Cloud Infrastructure, and GCP.

- **Business intent overlays:** Aruba EdgeConnect is built upon an application-specific virtual WAN overlay model. Multiple overlays may be defined to abstract the underlying physical transport services from the virtual overlays, each supporting different QoS, transport, failover, and security policies. It can be deployed to extend micro-segmentation of specific application traffic from the data center across the WAN to help maintain security compliance mandates.

- **Tunnel bonding:** Helps in optimizing the SD-WAN for availability, throughput and efficiency. As part of this policy definition, customers have the ability to customize the link prioritization and traffic steering policies based on multiple criteria, including physical performance characteristics, link economics, link resiliency characteristics, and customer-definable attributes. Bonded tunnels may be configured from two or more physical WAN links to form a single logical overlay connection. Bonded tunnels can be configured with two MPLS connections to create a primary bonded tunnel.

Figure 3: A bonded tunnel configured with an MPLS service delivers higher performance and higher availability than either single WAN service alone.

Resiliency or throughput emphasis

Packet-based multi-pathing

Brownout aware

4G / 5G /LTE

MPLS (-1-5-10Mbps) X
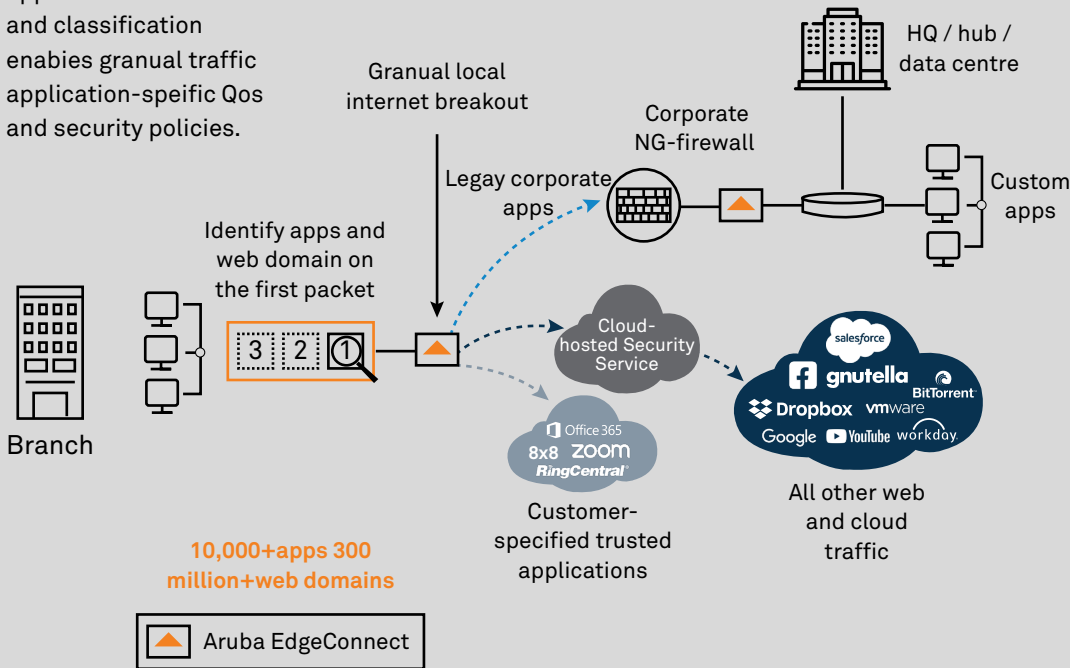
Internet (-50-200MBPS) X
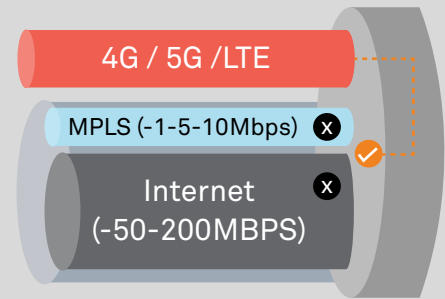
Bonded tunnel example

- **WAN hardening:** Each WAN overlay is secured edge-to-edge via 256-bit AES encrypted tunnels. No unauthorized outside traffic can enter the branch. With the option to deploy Aruba EdgeConnect directly onto the internet, WAN hardening secures branch offices without the appliance sprawl and operating costs of deploying and managing dedicated firewalls.

- **Zone-based stateful firewall:** Centrally visualize, define and orchestrate granular security policies and create secure end-to-end zones across any combination of users, application groups and virtual overlays, pushing configuration updates to sites in accordance with business intent. Using simple templates to create unique zones that enforce granular perimeter security policies across LAN-WAN-LAN and LAN-WAN-Data Center use cases.

- **Path conditioning:** This feature provides private-line-like performance over the public internet. It includes techniques to overcome the adverse effects of packet loss and out-of-order packets that are common with broadband internet and MPLS connections to improve application performance.

- **First-packet iQ application classification:** Aruba First-packet classification technology (First-packet iQ™) enables EdgeConnect to intelligently steer traffic on the first packet to the correct SD-WAN overlay based on predefined application-driven business and security policies and across the underlying WAN circuits utilized by that overlay. First Packet iQ™ enables secure adaptive internet breakout through automatic application updates including more than 13,000 cloud applications and over 300 million web domains daily, so users can always connect to any application without manual intervention from IT.

5

First-Packet iQ enables application visibility and control

Figure 4: First-packet iQ application identification and classification enabies granual traffic application-speific Qos and security policies.

Granual local internet breakout

Identify apps and web domain on the first packet

Corporate NG-firewall

HQ / hub / data centre

Legay corporate apps

Custom apps

Cloud-hosted Security Service

Branch

10,000+apps 300 million+web domains

Aruba EdgeConnect

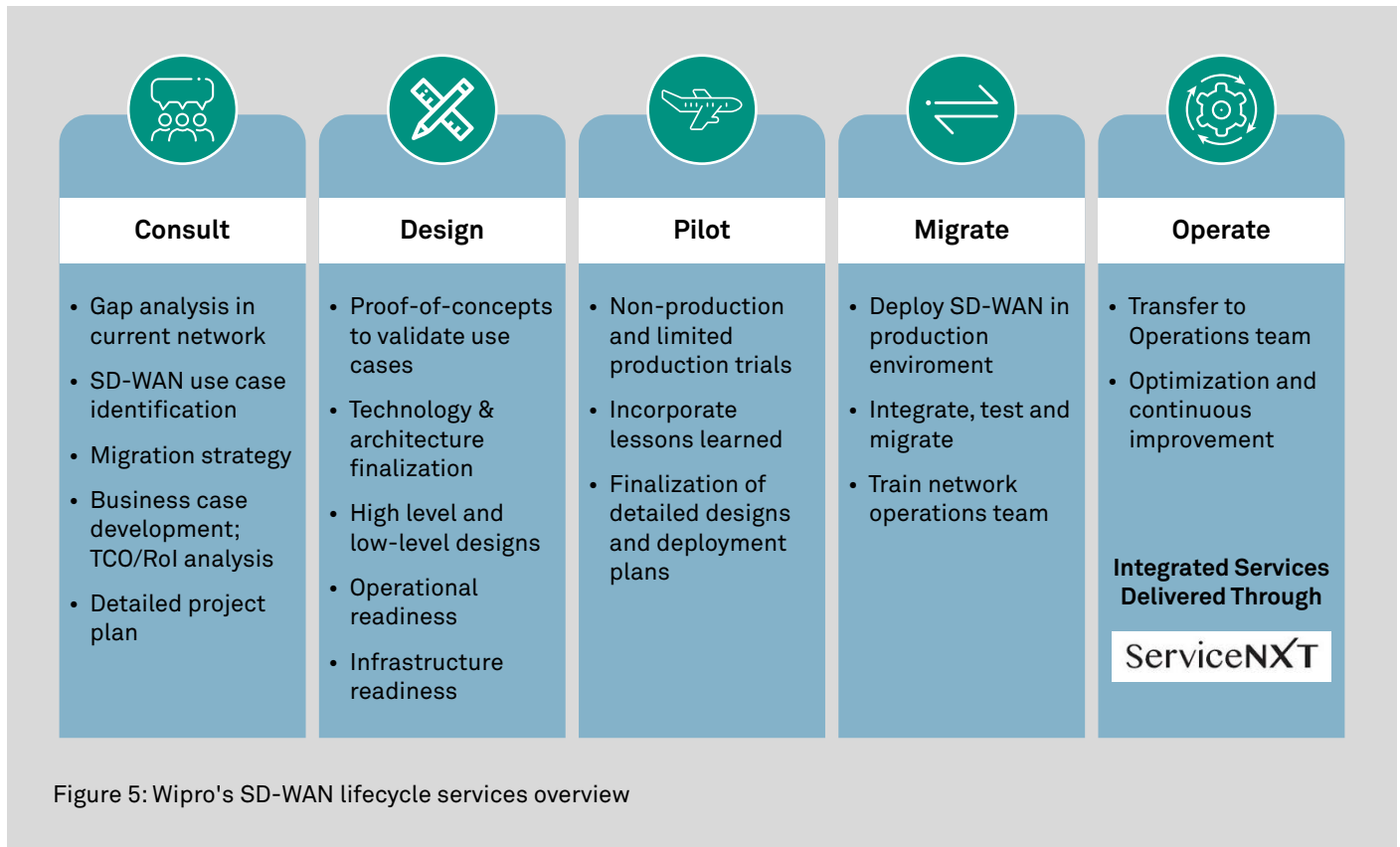Customer-specified trusted applications

All other web and cloud traffic

- **Local internet breakout:** Granular, intelligent traffic steering enabled by First-packet iQ eliminates the inefficiency of backhauling all HTTP/HTTPS traffic to the data center. The solution eliminates the potential for wasted bandwidth and performance bottlenecks for trusted SaaS and web traffic. Trusted traffic is sent directly across the internet while unknown or suspicious traffic may be sent automatically to more robust security services in accordance with corporate security policies.

- **Routing:** Aruba EdgeConnect supports standard Layer 2 and Layer 3 open networking protocols such as VLAN (802.1Q), LAG (802.3ad), IPv4 and IPv6 forwarding, GRE, IPsec, VRRP, WCCP, PBR, BGP (version 4), OSPF.

- **Cloud intelligence:** Real-time updates on the best performing path to reach thousands of Software as a Service (SaaS) applications, ensuring users connect to those applications in the fastest, most intelligent way available. Additionally, automated daily updates of the application IP address database to Aruba EdgeConnect appliances keep pace with SaaS and web address changes.

- **Cloud on-ramp:** Enables customers to rapidly embrace a multi-cloud strategy with certified SaaS/IaaS solutions on Microsoft Azure, AWS, Equinix Oracle Cloud, and Google Public Cloud

- **Automated integration and orchestration:** Aruba EdgeConnect supports automated orchestration, using a drag-and-drop interface, to enable enterprises to automate and accelerate the integration of cloud services built-in to Aruba Orchestrator.

- **Advanced cloud surface security allowing customers to choose from multiple "best-in-breed" security vendors as directly service chained to EdgeConnect appliances and automated through Service Orchestration.** Cloud security partners such as Check Point, Forcepoint, McAfee, Netskope, Palo Alto Networks, Symantec, Zscaler, and secure DNS (e.g. Infoblox) utilizing private secure encrypted IPsec tunnels. Avoid vendor lock in with freedom of choice across the SD-WAN fabric!

- **High availability:** The Aruba EdgeConnect HA cluster protects from hardware, software and transport failures. High availability is achieved by providing fault tolerance on both the network side (WAN) and on the equipment side. The Aruba EdgeConnect appliances are inter-connected with a HA link that allows tunnels over each underlay to connect to both appliances.

Wipro's SD-WAN lifecycle services

Wipro delivers end-to-end services for the #WAN-Freedom SD-WAN starting from consulting to operate to ensure the complete benefit to the enterprise.

The details of each service are given in Figure :

Consult	Design	Pilot	Migrate	Operate
• Gap analysis in current network • SD-WAN use case identification • Migration strategy • Business case development; TCO/RoI analysis • Detailed project plan	• Proof-of-concepts to validate use cases • Technology & architecture finalization • High level and low-level designs • Operational readiness • Infrastructure readiness	• Non-production and limited production trials • Incorporate lessons learned • Finalization of detailed designs and deployment plans	• Deploy SD-WAN in production enviroment • Integrate, test and migrate • Train network operations team	• Transfer to Operations team • Optimization and continuous improvement **Integrated Services Delivered Through** ServiceNXT

Figure 5: Wipro's SD-WAN lifecycle services overview

Wipro's value additions to the SD-Wan services:

- Telco flexibility: Choice of telco as per geo flexibility and ease of manageability and better ROI

- Cost optimization guidance: Choice of MPLS, internet or hybrid connectivity

- Platform integrations: Integration with service desk tools like ServiceNow Integration with biz apps using Aruba EdgeConnect's SD-WAN APIs, AI integration using Wipro Holmes and other native SD-WAN management platforms

- Secure branch services: Cloud security with SASE services, regional or hierarchical security service chaining of services

- Stronger CoE and partnership: Leveraging the early trials and validated designs from Center of Excellence and strong partnership between Wipro – Aruba EdgeConnect to bring the best of technology and services

- Proven experience in global project delivery: Dedicated organization structure for system integration project delivery with a track record of for WAN migrations/ SD-WAN transformations globally

Why Wipro and Aruba EdgeConnect are better together

With key differentiated services by Wipro (described in the table below) and technology delivered by Aruba EdgeConnect, the partnership delivers great value to any organization.

Why Wipro	Why Aruba EdgeConnect?
• Strong consulting services delivered with Insightix framework clearly gives technology, vendor and TCO/ROI analysis with business case • Global SI capabilities - Two decades of experience in building end-to-end IT infrastructure • Infrastructure capabilities goes beyond WAN, in the areas of data center (DC) and workplace and end user services. • Wipro's deep expertise in DC hosting, IaaS & cloud offerings • Experience with enterprise and business application development, testing and sustenance • Strategic alliances with leading SDN product vendors and cloud service providers	• Multiplier on cloud investments -Agility and economics of public infrastructure with the control and reliability of dedicated resources • Manage continuous change - Architected to manage change: Fully autonomous WAN driven by business-intent • Focused, dedicated specialists -Modern WAN innovation and transformation backed by a history of industry firsts • Freedom of choice - Any transport, any cloud, any deployment model; best of breed partners with one-click integration; always choose what's best for your needs

Summary

WAN Freedom enables IT organizations to transform their legacy WAN architecture from a hindrance to an enabling platform. With WAN Freedom, IT can confidently adopt, deploy, and integrate cloud, SaaS, and data center applications using any transport, including MPLS, broadband and cellular. Wipro's SD-WAN radically shifts configuration and policy away from disjointed archaic networking commands and rules to a global policy that aligns with business intent encompassing performance, security, and compliance. Remote office infrastructure and management costs are reduced, while turn-up times are shortened, and visibility enhanced - allowing you to quickly solve performance and availability problems through actionable insights.

Lower WAN costs are realized as transport independence is gained, providing the ability to take advantage of transports that meet price and performance metrics including MPLS, broadband Internet and others. Benefit on futuristic cloud investments, optimize the performance of any apps and user experience. Add on to any competitor's hardware or brown field environment, can optimize any apps and network. It gives SASE architecture for adding in firewall and choose industry leading security provider with saving with your operational cost.

Wipro Limited
Doddakannelli,
Sarjapur Road,
Bangalore-560 035,
India
Tel: +91 (80) 2844 0011
Fax: +91 (80) 2844 0256
wipro.com

Wipro Limited (NYSE: WIT, BSE: 507685, NSE: WIPRO) is a leading global information technology, consulting and business process services company. We harness the power of cognitive computing, hyper-automation, robotics, cloud, analytics and emerging technologies to help our clients adapt to the digital world and make them successful. A company recognized globally for its comprehensive portfolio of services, strong commitment to sustainability and good corporate citizenship, we have over 220,000 dedicated employees serving clients across six continents. Together, we discover ideas and connect the dots to build a better and a bold new future.

For more information,
please write to us at **info@wipro.com**