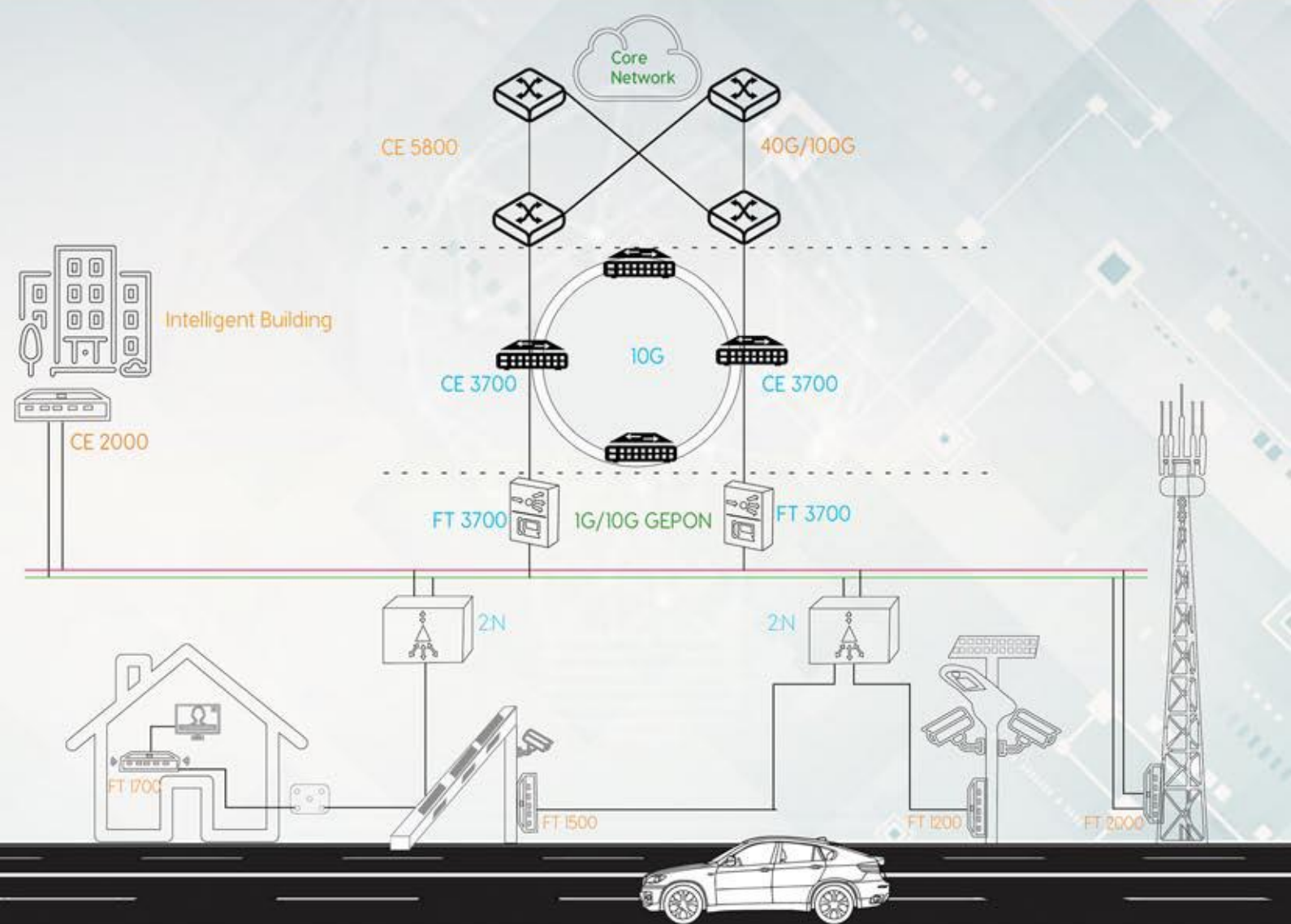


# CE 3700 Series

## 10G Routing Switches



- ▶ Most suitable for Service Provider access networks
- ▶ Integrated routing, Switching and security
- ▶ Low latency and packet buffering
- ▶ Full 1 GbE ports, 10GbE uplinks
- ▶ Full layer 3 routing feature set with Static, RIP, OSPF and BGP routing, IPv 6 and ACLs and requires no licensing
- ▶ Professional Verdant NMS for man-machine interaction, precise fault location, alarm report and fast problem resolution
- ▶ Verdant CE 3700 Series has 6 models: CE 3728F, CE 3740, CE 3740F, CE 3756F, CE 3756, CE 3756M



- ✓ Verdant CE 3700 is a Carrier Ethernet switch, supports multiple services such as MCE P/PE of MPLS VPN, MPLS TE, MPLS OAM and network security based on L3 wire-speed switching service
- ✓ Support continuous layer3 routing forwarding, avoiding service interruption as a result of a single point of failure
- ✓ Supports BFD (Bidirectional Forwarding Detection) and ISSU (In-Service Software Upgrade)
- ✓ High reliability (99.999%): MTTR of CE 3700 Series is 50ms, meeting the requirement of the carrier-level service.
- ✓ Supports Virtual Cluster Switching Technique which realizes single IP management, greatly improving the L3 networking efficiency and lowering the operating cost

## **Innovative VSS (Virtual Switch System)**

- ✓ Virtualize multiple physical devices into one. The performance, reliability and management of the virtual system are superior to the physical ones

## **Carrier Level Reliability**

- ✓ VSS makes full use of each link in the physical devices, which avoids STP blocking the link and protects the original link to the maximum extent

## **Carrier Level Reliability**

- ✓ Based on HPS (Hitless Protection System), the key components of CE 3700 series such as the power module support dual back-up, hot-swap, seamless switching in the downtime without manual intervention

## **Varied Service Characteristics**

- ✓ Supports layer3 multicast routing protocol, which enable the device can access to IPTV, HD video surveillance and HD video conference
- ✓ Supports layer3 routing protocol and super-large routing table capacity, which enables the device is available in service provider networks and supports Layer3 MPLS VPN

## **Versatile IPv6 Solution**

- ✓ Supports the IPv6 protocol suite, IPv6 neighbor discovery
- ✓ Supports Ping, Traceroute, Telnet, SSH, ACL based on IPv6
- ✓ Supports MLD, MLD Snooping, IPv6 static routing, RIPng, OSPFv3 and BGP4+; Supports IPv6 tunnel: manual tunnel, automatic tunnel, GRE tunnel, 6to4 tunnel, ISATAP
- ✓ Supports IPv4 transiting to IPv6: IPv6 manual tunnel, automatic tunnel, 6 to 4 tunnel, ISATAP tunnel

## **Complete Security Mechanism**

- ✓ level-based packet schedule and packet protection, prevents DoS-/TCP-related SYN Flood, UDP Flood, Broadcast Storm or large traffic attacks, and supports level-based command line protection, endowing different levels of users with different management permissions

# PRODUCT CHARACTERISTICS

4



**CE 3728F**

16 Gigabit SFP ports  
8 Gigabit TX/SFP ports  
4 10GE ports



**CE 3740**

32 GE Base-T ports  
8 10 GE optical ports



**CE 3740F**

24 GE optical ports+  
8 GE Base-T ports  
8 10GE Optical ports



**CE 3756**

48 GE Base-T ports  
8 10GE Optical ports



**CE 3756F**

48 GE optical ports+  
4 GE SFP/ Base-T combo ports  
8 10GE Optical ports



**CE 3756M**

24 GE Base-T ports  
24 GE Optical ports  
8 10GE Optical ports

## ACCESSORIES



**AC Power Module**

Max Power 150W, AC100~240V

### GE Optical modules

- ✓ GSFP-TX-B -> GE SFP-to- RJ45 module
- ✓ GSFP-SX-D -> GE SFP multi-mode (500m, 850nm, LC, DDM)
- ✓ GSFP-LX-10-D -> GE SFP single-mode (10Km, 1310nm, LC, DDM)
- ✓ GSFP-LX-20-D -> GE SFP single-mode (20Km, 1310nm, LC, DDM)
- ✓ GSFP-LX-40-D -> GE SFP single-mode (40Km, 1310nm, LC, DDM)
- ✓ GSFP-ZX-80-D -> GE SFP single-mode (80Km, 1550nm, LC, DDM)
- ✓ GSFP-ZX-120-D -> GE SFP single-mode (120Km, 1550nm, LC, DDM)



**DC power module**

Max Power 150W, DC-36V ~ -72V

### 10GE Optical modules

- ✓ SFP+TX -> 10GE SFP+to-RJ45 module
- ✓ SFP+SX -> 10GE SFP+ multi-mode (300m, 850nm, LC)
- ✓ SFP+LX-10 -> 10GE SFP+ single-mode (10Km, 1310nm, LC, DDM)
- ✓ SFP+LX-20 -> 10GE SFP+ single-mode (20Km, 1310nm, LC, DDM)
- ✓ SFP+LX-40 -> 10GE SFP+ single-mode (40Km, 1550nm, LC, DDM)
- ✓ SFP+LX-80 -> 10GE SFP+ single-mode (80Km, 1550nm, LC, DDM)



# PRODUCT SPECIFICATIONS

5

Attributes	
Capacity	256 Gbps backplane connections, 168 Mpbs - 192 Mbps Forwarding rate, it has Advanced Hardware architecture with 32K / 64K MAC & Routing items.
Power supply	AC: 100V-240V, 50Hz±10%, DC: -36V~-72V (POE doesn't support the DC power supply.) Dual power supply (optional) *CE 3728F is expandable dual power supply, not hot swap
Environment	Operating temperature/humidity: 0°-50°; 10%-90% non-condensing Storage temperature/humidity: 20°-70°; 5%-95% non-condensing
MAC exchange	Static configuration and dynamic MAC learning, MAC browsing and removal, Black-hole MAC list Configurable aging time of the MAC address, Limited number of learnable MAC addresses, MAC filtration
VLAN	4K VLAN, GVRP, 1:1 VLAN mapping and N:1 VLAN mapping, QinQ and flexible QinQ, Private VLAN
STP	802.1D (STP), 802.1W (RSTP) and 802.1S (MSTP), BPDU protection, root protection, loopback protection
Multicast	IGMP v1/v2/v3, IGMP Snooping, IGMP Fast Leave, Multicast group strategy and quantity limitatio Multicast flow copying over VLANs, PIM-SM and PIM-DM
IPv4	Static routing, RIP v1/v2, OSPF, BGP, Load balance by equivalent routing, BFD for OSPF, BGP
IPv6	ICMPv6, DHCPv6, ACLv6 and IPv6 Telnet, IPv6 neighbor discovery, Path MTU discovery, MLD V1/V2, MLD snooping, IPv6 Static Routing, RIPng, OSPFv3, BGP4+, Manual tunnel, ISATAP tunnel, 6 to 4 tunnel
MCE	MCE
MPLS VPN	LDP protocol, MCE, P/PE of MPLS VPN, MPLS TE, MPLS OAM
QoS	Flow classification based on L2/L3/L4 protocols, 802.1P/DSCP priority re-labeling, CAR flow limit SP, WRR, and "SP+WRR", Congestion avoidance mechanisms, Tail-Drop and WRED Flow monitoring and flow shaping
Security features	L2/L3/L4 ACL flow identification and filtration, DDoS attack prevention, DHCP snooping & DHCP option 82 TCP's SYN Flood attack prevention, UDP Flood attack prevention, Broadcast/multicast, Port isolation IEEE 802.1x authentication ,Port security & "IP+MAC+port" binding, Level-based command line protection, URPF
Reliability	Power 1+1 backup, Static/LACP link aggregation, Cross service card link aggregation, EAPS, VRRP, ISSU GR for OSPF and BGP, BFD for OSPF and BGP
Management	Console, Telnet, SSH 2.0, Web, SNMP v1/v2/v3, TFTP, RMON, sFLOW
Energy saving	IEEE 802.3az

# SMART+CONNECTED

## Communities



- High Speed Internet
- Managed IP PBX
- Community Wi-Fi Hotspot
- Private Mobile Broadband (4G+ or 5G)
- Video Surveillance and Monitoring
- Content Delivery
- IOE



With the world's population shifting to urban areas, community leaders are pressed for answers to overcrowding, pollution, budget & resource constraints, inadequate infrastructures, and the need for continuing growth.

Kvaliteta's offerings are the answer to create "Smart+Connected" communities using intelligent networking capabilities to weave together people, services, community assets, security and learning into a single pervasive solution. "Smart+Connected" acknowledges the essential role of the network as the platform to help transform physical communities to connected communities.

Kvaliteta's offerings include a High Speed Broadband Connectivity using Optical Fiber technologies to individual homes, and Shared Fiber Optic infrastructure for PABX for internal communications, CCTV, Video Monitoring and Analytics, Automated Number Plate recognition-based Access Control and Connected Solar LED Lighting for common areas, all offered as a fully managed Service with Enterprise Level Support and IT Security.



**FT 1704 V**

New generation smart ONU for integrated multi-service networks with 1Gigabit Ethernet 3 Fast ethernet + built-in 802.11b/g/n, 300Mbps WiFi with external antenna and Two FXS Ports (Telephone Connection).



**FT 1704**

New generation smart ONU for integrated multi-service networks with 1 Gigabit Ethernet 3 Fast ethernet + built-in 802.11b/g/n, 300Mbps WiFi with external antenna.



**FT 1701**

Smart ONUs with single Gigabit Ethernet. Most suitable for residents with Installed LAN or WLAN installed.



**CT 100**

IP PBX for SME & Home Office, offers 1 port RJ11 with a GSM port for fixed line voice, 3 LAN ports, 1 WAN & 802.11b/g/n MBPS WiFi with an external antenna. The WAN port can be connected to any FTTH CPE or 4G Outdoor CPE.

Supports 1 SIP Trunk and 32 IP phone extensions



**Vehicle Access Control  
Gate Controller**

Plate-based vehicle access control and drive-through, Remote web access, Integrated and synchronized IR LED illumination (Night Vision).

24 \* 7 Surveillance systems with Centralized recording, Local NVR with Live View, Intelligent Live View, Proactive alarming function, video analytics functions and detectors, 3D Map Interface, Intelligent Search.



**Intelligent Video  
Management Systems**



**Connected Solar  
LED Lighting**

18-36W LED Lighting, 2-3 Days autonomy, Energy Efficient Dimmable Lighting, Hot Swappable Battery Packs, Optimized Solar Panels for Kenya, Web-based Control, Remote Monitoring, Maintenance.



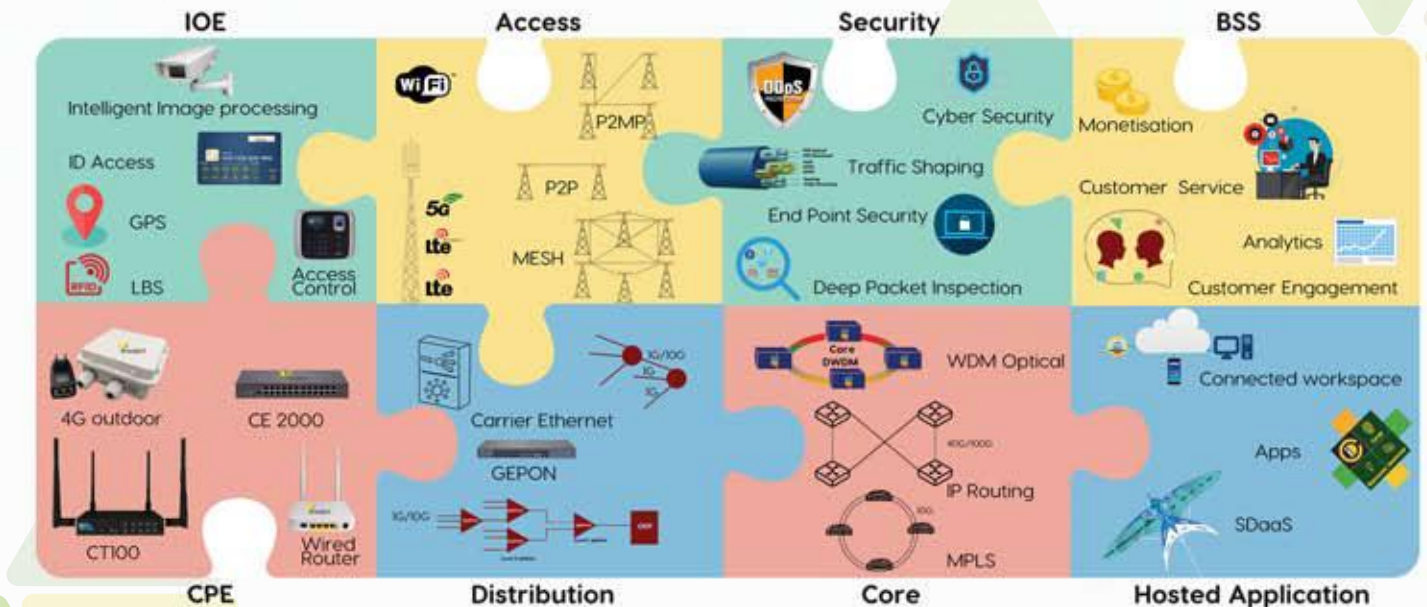
**Kvaliteta Systems & Solutions** founded in 2010, with a Vision to transform the application delivery Model and change the way people engage and collaborate with applications. Our solutions are targeted towards organizations who want to deploy or interface or migrate to "Engagement Centric" applications from "Record Centric" applications.

The foundation to delivering process centric applications are the underlying network Infrastructure, build for agility, Security and open. Kvaliteta's SP-IT offering is targeted towards making the networks more application aware by the futuristic Industry trends, Software defined, Intelligent EDGE, Content aware and provide more virtualized network functions, and finally ensuring the applications and networks in harmony.

Comined with our suitably equipped delivery center in india, with 24\*7 support capabilities, we are a ideal company to partner for any Strategic Technology Initiatives.

Over the years we have gained a vast experience in delivering IT solutions, Domain expertise, Technical excellence and understanding of working with different cultures. And today we are able to help buinssesses who want to be Agile and future ready.

Our Service Provider IT (SP-IT) team offers an array of service offerings for communication service providers. Our objective is to be a transformation partners for wired / wireless network operators, Internet Service Providers (ISPs) Government Core Networks, Campus Networks and Mobile Private Networks in Africa and Middle East.



#### Our SP-IT offering includes:

**Core:** ■ WDM System for Backbone & Metro Core networks to cater to the ever increasing demand of bandwidth, supports line rate of 40Gbps and 100Gbps. ■ Includes Layer 2 feature sets for aggregation network

**Distribution:** ■ A new generation "Verdant" Carrier- Class Ethernet switch oriented for MPLS & service provider access networks. ■ GEAPON Products for FTTH/FTTB Applications – 1G/10G OLT, Commercial Gigabit ONU, Home Gateway and Multi Dwelling Unit. ■ Our Verdant range of Switches delivers a consistent wired / wireless user experience and it provides Layer3 feature sets which do not require any licensing.

**Access:** ■ High Throughput Satellites (HTS) - KA Band Satellite backhaul & Internet Broadband offering. Available capacity – 10Gbps. ■ Last mile & Rural Connectivity - Connectivity using PTP/PTMP Radio links for Backhaul network and using 4G LTE (or) 5G for end user services & Wi-Fi hotspots on L

**Security:** ■ DPI based Application Level visibility, control & security. ■ DDoS/ Bot Protection, Web Filtering & Network based anti-virus/anti-malware for Cyber & End point security

**CPE & Internet of Things** ■ 4G outdoor solutions for Large home & School connectivity. ■ Integrated VOIP gateway with PBX for Voice/Data service ■ Intelligent Access CPE with Edge Computing: ■ Fully managed networking solution Services that are meaningful for Education includes Deep Packet Inspection with Security, Wireless, Content Delivery. ■ Intelligent Image Processing for Authentication & tracking, ID Access for Classification and Extraction, GPS based location tracking and IRIS/IFID for access control

**Hosted Applications:** ■ Our SDaaS framework (KITE & CID) offers service providers to develop captive portals – E-KYC, e-services offering for digital commerce & Governance and ID tracking & management systems for Education and health

**Business Support System :** ■ DPI CDR's for monetization, On-Line and Off-Line Charging, AAA Integration, Value added Services, Analytics. Customer Service & Engagement Control.

#### Local Support:



#### India

Kvaliteta Systems & Solutions  
2207, Yamuna Tower,  
Phase-III, Technopark,  
Trivandrum-695582, India

#### Middle East

Kvaliteta Systems and Solutions FZC  
RAK Economic Zone, PO Box 17191,  
Ras Al Khaimah, United Arab Emirates

#### Singapore

Kvaliteta Systems & Solutions Pte Ltd  
9 Simei Street 4 #04-08  
Singapore 529865

