TELECOM TECHNOLOGY STACK

FCC LICENSED | PORTLAND, OREGON | CARRIER INFRASTRUCTURE | RINGZU.COM

This document provides a verified technical specification of the privately owned and operated infrastructure supporting RingzU Telecommunications Corporation's carrier-grade VoIP, AI voice agent, and business communications platform. Every component listed is physically deployed, owned outright, and operated from our Portland, Oregon facility.

THE SPEC	WHAT THAT MEANS FOR YOU
Left column. Pure technical specification. Model numbers, protocols, throughput, capacity. Written for the IT professional or network engineer who needs to verify what's actually under the hood.	Right column. The same information translated into plain English for the business owner. No jargon. Just what it means for your calls, your data, and your operation.

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NETWORK SECURITY

THE SPEC	WHAT THAT MEANS FOR YOU
Dual-Layer Perimeter Defense **Layer 1:** Lumen Commercial Carrier-Grade firewall, anti virus, network segmentation, stateful packet inspection. **Layer 2:** Grandstream Next-Generation Firewall Layer 3-7 IDS/IPS, Deep Packet Inspection (DPI), SSL deep inspection 9Gbps NGFW throughput, geo-IP enforcement DoS and spoofing defense, content control	Two completely independent firewalls standing between your calls and anyone who shouldn't be listening. One from Lumen as fiber provider. One we installed ourselves. Because one lock on the front door was never enough.
Advanced Threat Protection **Signature-based IDS/IPS** with automatic rule updates **Real-time SSL** deep inspection **SSL certificate** blacklist and white-list enforcement **Application and protocol** monitoring via DPI **Instant identification** and response to sophisticated attacks	If something suspicious tries to sneak through a fake certificate, a rogue application, a probing attack the system identifies it in real time and shuts it down before it gets anywhere near your data or your calls.

THE SPEC	WHAT THAT MEANS FOR YOU
Encrypted Traffic and Secure Boot **TLS-encrypted traffic** end-to-end throughout entire stack. (UDP is accepted traffic) **Secure boot** with unique security certificates per device **TPM 2.0 h**ardware security module on primary compute server **Encrypted VPN** tunnels for all remote access **WireGuard, OpenVPN, IPSec, L2TP, PPTP support**	Every piece of data moving through this system is encrypted. Every device boots with a verified identity. No one gets in pretending to be something they're not.
NETWORK INFRASTRUCTURE	
Primary Fiber Connection **Carrier:** Lumen Technologies **Download:** 2 Gbps **Cat/SPF+ Upload:** 2 Gbps **Type:** Commercial Contracted Symmetric Fiber **IPs:** Multiple static commercial IP addresses **Cabling:** Cat 8 direct throughout facility	Two gigabits of commercial dedicated fiber. Not home internet dressed up in a suit a commercially contracted line with dedicated IP's and the kind of upload speed that keeps voice calls crystal clear even when the system is running flat out.

THE SPEC	WHAT THAT MEANS FOR YOU
On Site Communications Hardware **Grandstream GCC 602x** **Grandstream UCM6510 IP PBX** **Yeastar YST-TG1600G LTE** **Grandstream GWN7703** **CPU:** Quad-core Cortex-A9 at 1.8GHz VPN **VoPC:** LEC with NLP Packeted, 128ms-tail-length carrier grade Line Echo Cancel, **HA:** hot standby/ high availability fail-over **Management:** GDMS cloud, Web UI, SSH, SNMP, CLI **Connections:** T1/E1/J1 Interface **WAN:** Load balancing and fail-over **PoE:** 370W with PoE++ support	The device that secures networks, switches internal traffic and routes calls. Think of this as the brain of the operation. Carrier-grade hardware that most regional telco's would be proud to deploy.
APC Schneider Electric UPS SU2200XLNET **Type:** Uninterrupted Power Supply 2200VA **Function**: Bridge power to emergency generator **Connected to:** Hardware Rack **Protection**: Clean shutdown for all connected systems **Coverage**: Servers, PBX Hardware, Storage	The power goes out. You stay live. The UPS buys enough time to switch over to the backup generators so your callers never hear dead air and your systems never crash mid-call.

PRIMARY COMPUTE SERVER

THE SPEC	WHAT THAT MEANS FOR YOU
Main Operations Server (2 Deployments) **Main & Reserve: Identical Systems** **Processors:** Dual Intel Core i9-12900KF, 12th Generation Series **Speed**: 3.20 GHz **Cores/Threads:** 16 Performance + 8 Efficiency **Threads:** 24 **Dual Motherboard:** ASUS Z690 Extreme 6E **RAM:** 256 GB total (128 GB installed + 128 GB extension module) **RAM Speed:** 2,667 MT/s **Operating Systems:** Windows 11 Pro 64-bit, Linux, Ubuntu **Security:** TPM 2.0 Trusted Platform Module	This isn't a server bought off a shelf. It's purpose-built & running 256 gigabytes of RAM. Actually more memory than most small businesses have in all PC's combined storage. It handles customer logic, platform services and connection directives alongside dashboard analytics simultaneously without breaking a sweat. We're not even counting our fail safe deployment.
Dual GPU's: 2 **NVIDIA RTX 3080 Ti** **Dedicated VRAM:** 24,576 MB GDDR6X **CUDA Cores:** 20,480 at 1,665 MHz X2 **Memory Bandwidth:** 1824 GB/s **Total Available Graphics Memory:** 155,468 MB	Multi unit professional grade GPU's handle AI inference, voice processing, and real-time analytics. The same class of hardware that powers machine learning labs is sitting in our stack, processing your calls.

THE SPEC	WHAT THAT MEANS FOR YOU
Primary Server Storage Array **Disk 1:** 10 TB SDD 9,314 GB Healthy **Disk 2:** 12 TB SSD 1,863 GB Healthy **Disk 3:** 2 TB HDD 1,863 GB Healthy **Security Drives:** 13 Proprietary Drives **Total System Server:** 16 Drives **Total server storage:** 24 TB **File system:** NTFS I volumes confirmed Healthy | 100% Uptime/No Failures	Twenty-four terabytes of storage on the primary server alone is crazy space. Audio recordings, transcripts, call logs, customer data there's room for everything, with space to grow for years before anyone needs to think about purchasing an upgrade.
SECONDARY SERVER DEPLOYED	
AI Sandbox and Testing Infrastructure Platform RAM 128GB Hard Set Virtual RAM: 128GB Expansion Volume 1: Healthy — 17 TB free Volume 2: Healthy — 13.5 TB free Free Storage: = 20.5TB Total storage: approximately 22 TB System status: Healthy Continuous Uptime - Confirmed Rated: 100% Uptime / No Failure	A dedicated third server running independently from the primary stack. It's the sandbox where AI gets tested before it touches a customer. It's also where backups live, where replication runs, and where the emergency phone system sleeps just in case the backup #2 fails. Backup systems is our thing! Count: 2

THE SPEC	WHAT THAT MEANS FOR YOU
Installed Deployed Supplemental Services Stack **AI Console:** Active **Chat Server:** Active **Cloud Sync:** Active **DHCP Server:** Active **Directory Server**: Active **SSO Server:** Active **Node.js:** v18, v20, v22 **Python 2, Python 3.9: In Use** **Virtual Machine Manager:** Active **Snapshot Replication:** Engaged **Replication Service: Active** **Storage Analyzer:** Active **Ai Knowledge Base/RAG:** Running **OAuth Service:** Active **Secure Sign-In Service:** Active **Tail-scale VPN:** Engaged **Active Insight:** Running	This isn't a simple server just storing files. It's a completely secondary system running its own web services, its own authentication layer, its own AI environment, and its own VPN all independently from the primary server. Two separate systems means if one has a problem, the other keeps your services running.
Emergency Backup Systems **Platform:** Asterisk 22 **Deployment**: Secondary Servers **Status**: Standby activates automatically on primary PBX failure. **Capability**: Full SIP telephony fail Safe **Power:** Emergency Generators/APC UPC's	If the primary phone system ever has an issue, Asterisk wakes up and your calls keep routing. Your customers never know anything happened. This is the fail over most telecom providers charge extra for we built it in.

TELEPHONY INFRASTRUCTURE

THE SPEC	WHAT THAT MEANS FOR YOU
VoIP, PBX,LTE and Switch Systems: **Grandstream GCC 6020 & 6021** **Grandstream UCM 6308** **Yeastar YST-TG1600G LTE** **Grandstream GWN7703** **FreeSwitch/Asterisk:** Soft Switch **Protocols:** SIP, TCP/UDP/IP, RTP/RTCP, SRTP, TLS, STUN, LDAP, LTE 2/3/4G & IAX **Audio Codecs:** Opus, G.711 A/U-law, G.722, G.722.1/C, G.723.1, G.726-32, G.729A/B, iLBC, GSM, T.38, 850/900/1800/1900MHz **WCDMA** : 850/1900MHz, 850/2100MHz, 900/2100MHz **Video Codecs:** H.264, H.263, H.263+, VP8 QoS: FEC, Jitter Buffer, NetEQ, ToS, DSCP **Rest API**: For third-party integration	Thousands of calls in progress by thousands of users simultaneously we are true carrier infrastructure. We built it so we never have to tell a customer we're at capacity. Now ask your reseller to do the that. Go ahead, we'll wait.
FCC-Licensed Carrier Operations **Carrier License:** 837921 **Encryption:** TLS Supported **SIP signaling:** Supported **DID provisioning:** DID Supported **Local PTSN/VoIP:** Supported **Toll-free:** Supported **Number porting:** Supported **AI Tools:** Native Carrier Infrastructure **Automation:** Supported **A2P:** Supported **10DLC:** Compliant **USF/USAC:** Compliant	**RingzU Carrier FCC license.** We're not a reseller adding markup to someone else's service. We're provisioned directly as a National Service Provider which is exactly why our pricing looks the way it does. Starting to like us more and more, right?

TOTAL INFRASTRUCTURE STORAGE

THE SPEC	WHAT THAT MEANS FOR YOU
Storage Across All Systems **Primary Server:** 20 TB **Physical Drives:** 16 Hardware/SSD **Volumes:** 4 @20TB **Secondary External:** 22 TB **Total Confirmed Infrastructure Storage**: 42 TB **Redundancy:** 2 Active Independent Systems **Health Monitoring:** Continuous on all volumes	Forty terabytes of storage spread across two independent systems. Your recordings don't disappear. Your transcripts don't get purged. Your data has room to breathe and a backup copy on a completely separate machine.

ABOUT RINGZU TELECOMMUNICATIONS CORPORATION

RingzU Telecommunications Corporation is an FCC-licensed telephone service provider headquartered in Portland, Oregon. We are not a reseller, not a VoIP app, and not a middleman. We own our infrastructure, operate our own platform, and provision services directly on national carrier backbone — which is exactly why our pricing looks the way it does. Every specification in this document reflects hardware physically deployed and operational at our Portland, Oregon facility.

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