

## **POSITION SUMMARY**

Under the general supervision of the DOA/DFM and the DFM Telecom Supervisor, this position works closely with other Agency Telecom Services, Voice Services, Network Services, and Wide Area Network staff, which consists of classified staff, and LTEs, working as teams or as individuals. Primary duties are likely to include; Voice networks including Centrex telephone system and associated CAT3, CAT5, CAT5e, and CAT6 cabling running either to connector blocks, patch panels or RJ45 jacks. Voice/data equipment including analog, DSL, ISDN, T1, and DS3 circuits, dial-up networks, and special circuits like key systems and call-logging and distribution systems. Coordination with DOA /DET and Agency networks, especially the Ethernet backbone network, involving fiber optic, copper data cabling switching and routing equipment. There is some work with Microwave broadband networks such as AM/FM television and RF cable systems, with point-to-point and multi-drop synchronous nodes in addition to miscellaneous asynchronous network connections. WAN networks, involving peering routers and high-speed connections to DOA Owned buildings from telephone and internet service providers.

## **GOALS AND WORKER ACTIVITIES**

### **45% A. Voice, Video, and Data Network Equipment Installation**

- A1. Assist in the installation of network equipment in collaboration with other tenant Agency staff as required. Installed systems may include analog telephone lines, point-to-point and multi-point ISDN lines, DSL phone/data lines, video equipment, VoIP routers and switches, data routers and switches, Ethernet hubs, transceivers, fiber modules, wireless access points, and voice and data network monitoring equipment.
- A2. Perform installations, moves, adds, changes, or disconnects for the DOA Managed buildings with Centrex and ISDN phone systems as requested by tenant Agencies who process and document customer requests through CMMS.
- A3. Assist in the installation of associated network hardware such as ISDN racks, Ethernet network racks, ladders, wire management, connector blocks, and power for voice, video, or data networks as required in collaboration with other DOA staff. Some coordination with DET staff, outside contractors, and vendors or developers may also be required.
- A4. Perform connection terminations in MDF and IDF wiring closets in compliance with the DOA wiring standards for 568A, 568B, USOC, or other standards for voice, video, or data connections based on the particular building and wiring closet where work is being performed.
- A5. Test, terminate, and label voice jacks in offices and labs based on the building DOA standards and building standards. Certify correct operation through the use of basic voice test instruments like toners and polarity testers, and inspect for correct punch-down configurations on connector blocks and equipment jacks.
- A6. Activate data jacks for user work stations to establish connectivity between users and wiring closets and certify connections for proper operation using devices like the Fluke NetTool, Fluke

One-TouchNetwork Analyzer, Cable Certifier, Harris Cable Fault Finder, Harris TS250 ISDN test set.

- A7. Assist Telecom Managers document network and telecommunications architectures, configurations, expected performance parameters, potential problems, and assets. Present and demonstrate all aspects and details of completed projects to customers to ensure proper understanding and operational requirements.
- A8. Assist with installation, configuration, monitoring, tuning, and troubleshooting network hardware, and system security including firewall protection.
- A9. Act as a referring source and represent external customers to other DET groups and assist in customer communication and conflict resolution.

**30% B. Problem Determination and Resolution for Voice, Video, and Data Network Cabling and Equipment**

- B1. Analyze and troubleshoot problems relating to voice, data, video network cabling, and switching/routing equipment; investigate complex problems according to established procedures.
- B2. Determine the best solution for resolution of problems and then implement solution. Keep Tenant Agency Contacts informed of progress or new problems detected in the course of problem resolution.
- B3. Collect documentation on reported problems and escalate problems or collaborate DET, Tenant agency Managers or external vendors for problem resolution. Report progress and resolution Telecom managers. Update supervisors, and CMMS work order with current incident information.
- B4. Consult with end users and Tenant Agency Telecom Managers on hardware and software changes and problem definitions to ensure correct recording of problem complaints and enhance understanding of problem details based on reported symptoms.
- B5. Utilize necessary test and analysis instruments, network monitoring and performance software, and other diagnostic utilities in the course of problem determination and resolution.
- B6. Report results of testing and analysis Telecom managers to ensure accuracy of tests, monitoring, and diagnostics, before taking action to resolve operational problems.
- B7. Assist with the replacement of voice and data network cabling or infrastructure components, as well as network electronics including ISDN equipment, hubs, switches, and routers as required to resolve problems.
- B8. Coordinate problem resolution with appropriate vendors by providing the technical interface between vendors and users as required. Explain technical considerations to customers in terms they understand which might require translating certain technical details to layman's language.

- B9. Assist users as needed with equipment, connectivity, and operational issues if no network component or process is determined to be causing the problem (e.g. user error). Work with customers to determine whether additional training is required for local staff to properly and efficiently utilize installed systems. Refer training deficiencies to Telecom Managers and proposal for training.
- B10. Take customer reports of Centrex and ISDN telephone problems or changes. Work with end user over the phone or in person in an attempt to resolve simple issues (phone not plugged in, number not ringing due to being forwarded, phone in wrong jack, etc.) immediately and eliminate in-field repairs when possible.
- B11. Contact ATT for trouble/repair/tag tickets to be placed as needed to resolve problems or initial installations, especially if problem appears to not involve in-building wiring.

**20% C. Configuration, Monitoring, Documentation, Purchasing and Testing DOA/DSF and Customer Network Equipment and Telecommunications Infrastructure**

- C1 Accept increasing responsibility, as judged appropriate by unit supervisor or senior technical staff, for all aspects of the voice network, the existing backbone fiber network, and the 21stCentury Ethernet and wireless networks, including customer-owned network equipment. Besides installation and troubleshooting duties described in sections A and B of this position description, other areas include equipment configuration, on-location testing, and operational monitoring.
- C2. Assist in planning and managing changes to network and communications facilities and upgrading hardware as required to implement new features Tenant Agency needs or Projects. Planned changes resulting in full or partial network outages must be scheduled with the Requesting agency and or DET.
- C3. Work with Telecom Managers to collect and maintain thorough documentation for voice, video, and data networks, including the fiber backbone. Duties may include surveying various MDFs and IDFs to collect information to populate databases, determining infrastructure required for installation of voice equipment or 21st Century Network equipment, collecting information about current data and voice systems, and labeling equipment and communication lines with original or updated labels.
- C4. Daily check work order status in the CMMS. Make clear and concise notes in CMMS as it relates to that particular work order. Document any changes in the DOA/DSF database.
- C5. Participate and represent the Department as a member of appropriate statewide projects and work groups as assigned.
- C6. Submit Purchase requisitions to the DSF Telecom Supervisor.

**5% D. Perform other duties as assigned.**

**Knowledge and Skills:**

1. Knowledge of network devices like hubs, routers, and switches
2. Understanding of telecommunications systems including, but not limited to, analog circuits, digital circuits, DSL, and ISDN
3. Understanding of network cabling systems including, but not limited to, twisted-pair, CAT3, CAT5, CAT5e, CAT6, and fiber optic
4. Understanding of differences between USOC, 568A, and 568B standards of wiring.
5. Knowledge of general IS concepts, trends, and developments in IS
6. Understanding of the industry standard 7-layer Open System Interconnection (OSI) model to define a networking framework
7. Knowledge of TCP/IP network transmission protocol
8. Knowledge of basic electronics technology and courses of action available for problem determination and resolution
9. Knowledge of LANs, WANs, and general data communications, particularly Ethernet
10. Knowledge of basic hand tools required for hardware installation and maintenance, and skill in their use
11. Experience reviewing wiring diagram sections of architectural plans for large buildings
12. Experience operating thermal labeling equipment and applying labels to wall jacks and patch panels
13. Skill in using diagnostic test equipment and software for both telephony and data network installations
14. Experience with the Microsoft Office Suite, including creating spreadsheets using Microsoft Excel
15. Strong interpersonal and communications skills

**Special Requirements:**

As this position will require travel, a valid driver's license or ability to provide one's own transportation will be required.