



NOC Cadetship

Find your passion and develop skills while you work

Technical Department

Intro

We want you to be a happy and motivated part of the Lightwire team, confident in your ability to deliver amazing experiences for our customers.

You are keen to get ahead through learning new skills, and we want to present you with opportunities to learn and grow professionally to enable you to provide ever more meaningful outcomes for our customers.

To make this all possible, we have created the Lightwire Cadetship Program.

Structure

The NOC Cadetship is a key way for us to invest in our people in order to achieve these outcomes:

- Create opportunities for up-skilling in areas that are of interest to you
- Attract and retain "A players" like you
- To recognise your talent and drive and reward it with opportunities to excel professionally
- Increase your knowledge base to ensure the best possible customer outcomes
- Setting you up to succeed, whether that be at LW (we hope it is) or with another company

Based on a 2 year rotation, you will spend the first year of your cadetship learning within these five departments:







Engineering





Security, Platforms & Dev-Ops/Full Stack Data Engineering

Development

Year one is all about getting a taste of what a role in each department would involve and ensuring you are able to make an educated decision about where you want to head. In year two you will select a single department to focus on in order to drive professional growth in the area that interests you the most. Please note that all of the time you spend within the Cadetship program will fall within your standard working week, no overtime is required.

Year 1 Objectives:

In year 1 you will spend a total of 20 business days rotating between Lightwire's technical departments, enabling you to shadow and understand the operations/projects/technologies that they use. The objective of this rotation will be to shadow and learn rather than get involved in hands on work.

Year 2 Objectives:

The objective for year two will be developed between you, the Department Head, and the NOC Team Lead based off your key areas of interest and will see you spending 20 business days acting as an Intern within the relevant department on a mutually agreed upon cadence. This is where hands-on experience kicks in, with real world tasks being handled under supervision. At the end of year two you will have a junior level capability within your chosen field.

Technical Departments

The rotation will see a cadet shadow each department for two days across two sequential months (i.e. two days in dev across Feb / Mar, two days in core across Apr / May...).

To enable relevant department heads with sufficient notice, the year one rotation will be planned with a minimum of 8 weeks' notice (with a maximum of one cadet per cycle). This will also ensure adequate coverage for NOC. Individual cadetship progress will be tracked in a SharePoint.

Voice

Shadowing Objectives:

- The voice network design what part do Sippy, SBCs, AWS and carriers play? the provisioning process of 3CX services.
- The provisioning process of Teams Calling services.
- The provisioning process for SIP Services.
- Number portability what is it and how does it happen behind the scenes in NZ vs AU?
- Service quality and uptime monitoring Service quality and uptime monitoring voice services, including PBXs and hardware.
- Exposure to voice fault resolution.

Agenda

Owner: Richard White – Voice & Networks Engineer



- Provisioning Processes
 Teams
 3CX
 SIP trunk
 - Number allocation
- 2 PBX overview What a PBX does do

What a PBX does not do PBX lingo glosse

- Service quality and uptime monitoring Service quality and uptime monitoring voice services, including PBXs and hardware. VOIP monitor
 - rtcp

What is a MOS score and what it really means

- Exposure to voice fault resolution Common customer faults and how you diagnose Carrier fault detection
- 5 ½ day ride along with Richard

Join in the jobs of the day to see what its like

Agenda

Juan Van Rooyen - Voice Architect

- The voice network design Softwitch - Sippy SBC's Carriers and interconnects? Voice in the cloud
- 2 Number portability NZ - IPMZ AU - how broken it is
- SIP overview
 Basic SIP signalling
 SIP authentication
 Call establishment
 Call redirect
 Call routing

Core Network

Agenda

Matthew Cheer – Senior Network Engineer





Show tools used to show various metrics (Grafana, Cacti, Weathermap, pulse)

Understand how metrics are used to ensure performance is within standards

Understand some basic standards network is designed to run within

2 PoP design (A vs B)

Understand Nodes vs POP's

Understand the different Node classes and what it means

IP transit and peering – how it works (AS numbers and BGP) and how we do it – basically, how does the internet work?

Rural Engineering

Owner: JP Moller - Rural Network Engineer



Agenda

1	Exposure to the rural engineering domain and team responsibilities In this section you will learn: About the rural engineering team structure The different roles and key functions within the rural engineering team Where other team's responsibilities and and where rural engineering begins
2	Where other teams responsibilities end and where rural engineering begins Introduction to end-to-end rural network design and implementation In this section you will learn: How the network is built using a mix of layer 1, 2 and layer 3 technologies Be introduced to the open shortest path first [OSPF] routing protocol and how OSPF is used to support network resiliency How new greenfield sites are selected and commissioned How different services and products are delivered across the rural network
3	Exposure to wireless access network design In this section you will learn:The basics of how a radio system transmits and receives dataThe basics of radio antenna selection and configurationThe basics of wireless channel selection and configurationIntroduction to alternative fixed wireless access technologies
4	Exposure to advanced backhaul solutions and design In this section you will learn: How licensed radio backhaul works and how we use it When and where microwave vs mmwave radio backhaul can be used The role equal cost multipath (ECMP) routing plays in the toolbox The role link aggregation plays in the toolbox Introduction to dark fiber access services (DFAS)
5	Exposure to operational support queue and triage activities In this section you will learn: How we deal with and troubleshoot support escalations How we measure and monitor network health and performance How we use data to determine priorities
6	Ride-along with the rural engineering team In this section you will learn: What an average day looks like in a rural engineering r ole

Dev-Ops

Luke Johnson - Senior Solutions Architect



Agenda

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What is Fullstack Development? In this section you will learn:

Aspects of frontend development:

HTML, CSS and Javascript User interface design Reusable Web components Async communication Real-time frontend technologies Graphing and data visualisation Modern Javascript toolchains Fronted automated testing

Aspects of backend development:

What is a web API? RESTful API design Databases Model/View/Controller patterns Background jobs and scheduled tasks 3rd party system integrations - HTTP API Backend automated testing

Intro to our tech stack

In this section you will learn:

Intro to PHP and the Laravel framework for backend dev Intro to Vuejs and Typescript for fronted dev PostgreSQL databases from a Fullstack dev perspective Build and deploy pipeline from a Fullstack dev perspective Local development environments

Software Development Lifecycle

In this section you will learn:

High level overview of how the dev team receives, priorities and performs project work

SCRUM:

What is SCRUM - and how do we use it to be SCRUMish Sprint planning and overview of boards in Monday.com Daily standup Sprint retrospectives

Stakeholder comms and project/release management:

Monday.com updates Stakeholder comms for in-flight work UAT matrix and sign-off Marketing/Documentation material creation What do we do before/after a release? Our main platform projects and main integrations: Illume Celium Sippy Monitoring platform Chorus and other LFC's

Shape-up

What is Shape-Up - and what have we taken from the process? Project Shape-Up docs and people's roles Technical scoping Shape-Up pitch meetings

Demo Days

Platforms

Daniel Oosterwijk- DevOps Engineer



Agenda



Security

Nuwan Naththandige – Cyber Security Engineer



Agenda

What does a cyber security engineer do at Lightwire? In this section you will learn:

What is pentesting and offensive security? Examples of tools and custom software Devsecops and defensive security tooling:

Incident response and security/threat research

What platforms/tools do we use

Crowdstrike Shodan Upguard Burpsuite NMAP/Nessus

Data Engineering

Agenda

Stephanie Pullon – Head of Data Engineering



What is data engineering? In this section you will learn:

Data analysis at Lightwire

GIS analysis

Working with other teams:

How does work come in? SCRUM/Projects Ad-hoc queries Rural projects: RCU etc Business intelligence Where do we want to go?

2 GIS platforms, systems and tools? In this section you will learn:

PostGIS databases and what they are Coverage generation tools, systems, and processes Coverage API's: RST Celium Devops and automation in the GIS space

- **Obta analysis tools and platforms** In this section you will learn:
 - Scripting
 - Power BI
 - Databases