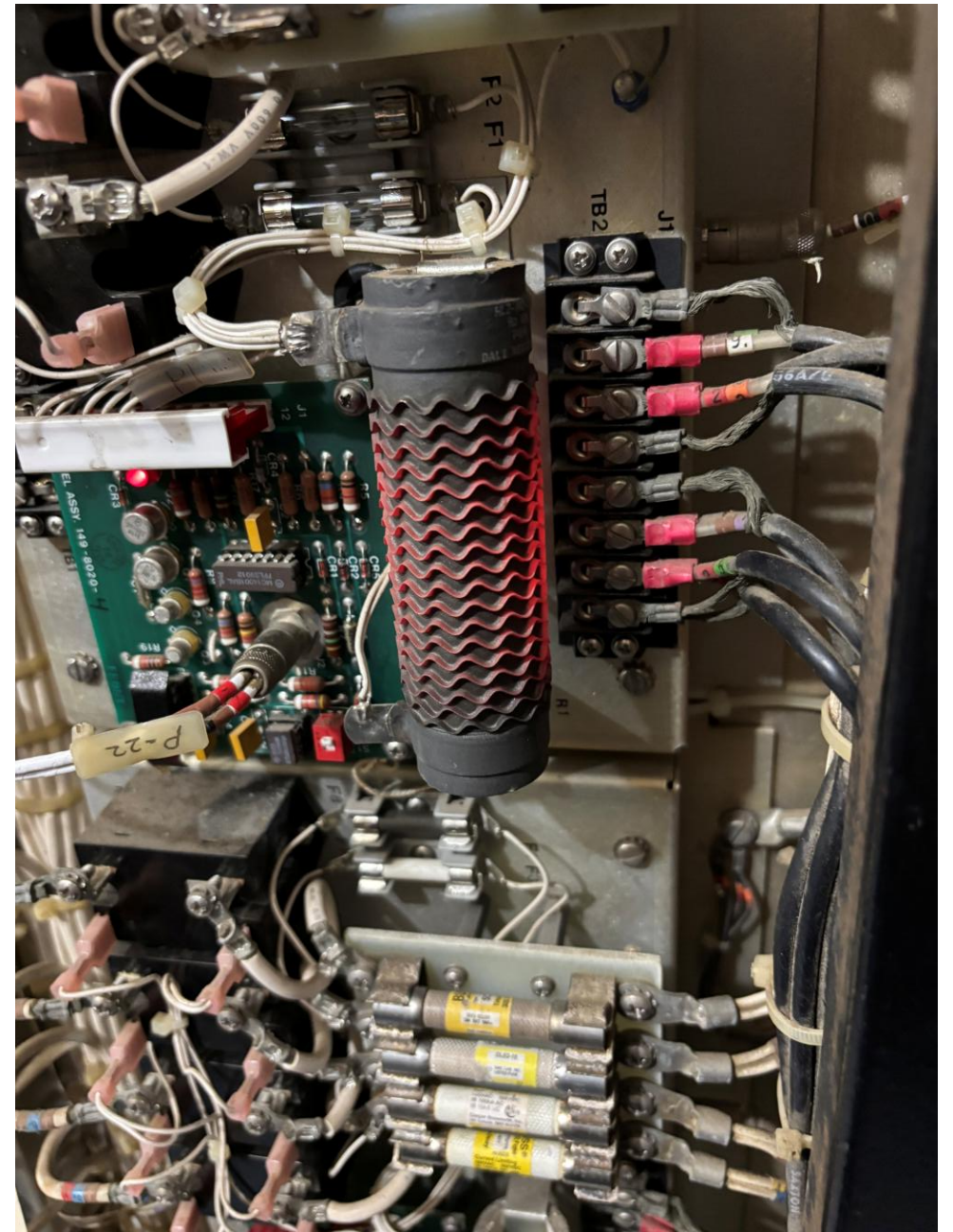


Repair or Replace?

How to Decide

Presentation Contents/Agenda

- What do we need to know?
- What are the variables?
- How do I present this properly to management?
- Summary



making digital broadcasting work

First things First

- Do an audit
 - Hardware
 - The time to start budgeting for replacement is the day you buy something
 - Software
 - Services
 - Phone
 - Support (generator, air conditioning)
- You can't budget replacements if you don't know what you have!

Transmitter Site Hardware

Item	OEM	Model	Purchased	Warranty Exp	Replacement Cost	SLA?
Antenna	Shively	VersaTune	May-21	May-22	3,500.00	no
Antenna	Shively	6813-2	Jun-16	Jun-17	9,658.00	
Coax	Andrew	AVA5-50	Jul-16	n/a	2,200.00	no
Transmitter	Nautel	VX1.5 (w/Orban)	Dec-23	Dec-27	9,999.99	no
Transmitter	Nautel	VS1	Jun-12	Jun-17	9,999.99	no
STL	Barix	Extreamer 500	Jun-16	Jun-17	900.00	no
Surge Protector	Raycap	120-2S-M3-06	Feb-25	Feb-26	2,130.00	no
Laptop	Dell	Latitude 5150	Oct-22	Oct-23	1,500.00	Dell Bus support
Router	TP Link	Archer AX1500	Mar-26	Mar-27	68.00	no

The Sam Vines “Boots Theory”

The reason that the rich were so rich, Vimes reasoned, was because they managed to spend less money.

Take boots, for example. He earned thirty-eight dollars a month plus allowances. A really good pair of leather boots cost fifty dollars. But an affordable pair of boots, which were sort of OK for a season or two and then leaked like hell when the cardboard gave out, cost about ten dollars. Those were the kind of boots Vimes always bought, and wore until the soles were so thin that he could tell where he was in Ankh-Morpork on a foggy night by the feel of the cobbles.

But the thing was that good boots lasted for years and years. A man who could afford fifty dollars had a pair of boots that'd still be keeping his feet dry in ten years' time, while the poor man who could only afford cheap boots would have spent a hundred dollars on boots in the same time and would still have wet feet.

Terry Pratchett, Men At Arms (Discworld Series)

The Intangibles

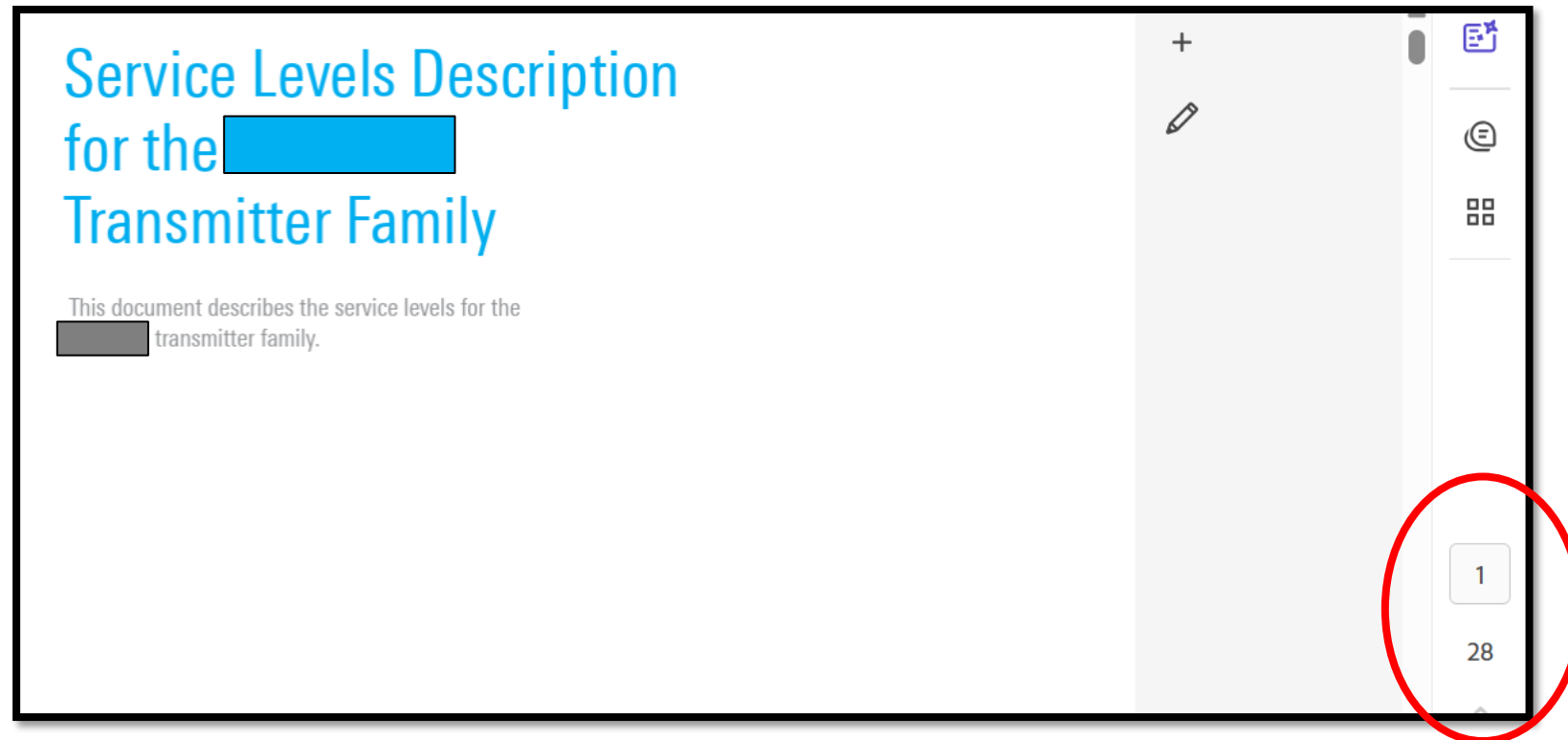
- Pain Points
 - Process efficiency... would steps be saved with a new system?
 - Are any process efficiencies outweighed by inefficiencies in other areas?
 - Challenges with training and implementation of new system?
 - Are personnel on board?

The Tangibles

- Cost of Acquisition
 - Purchase Price
 - Up front license fees
 - Installation
 - Removal/disposal of original system (can some cost be recouped on used market?)
 - Training staff (day to day operation and any maintenance/upkeep)

The Tangibles

- Cost of Operation
 - Service level agreements
 - Support contracts
 - Electricity
 - License fees
 - Parts



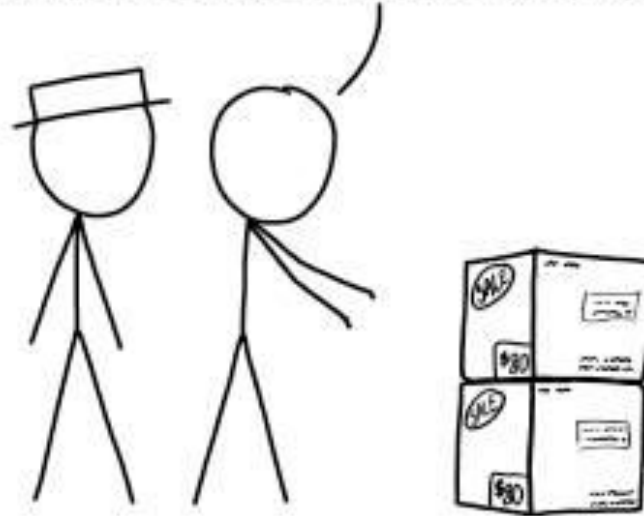
Repair vs. Replace

- Repairability
 - Does technical expertise still exist?
 - Is there factory support?
 - Are parts still available?
- Usability
 - Does it operate to current standards?
 - Can it be upgraded to current standards?
 - Cost?
 - Challenges?
 - Does it matter?



THEY WANT \$80 FOR THIS?

I COULD MAKE ONE MYSELF FOR
\$10 IN PARTS, AN HOUR OF WORK,
A TRIP TO THE HARDWARE STORE,
ANOTHER \$30 IN PARTS, ANOTHER
FEW HOURS OF WORK, TWO MORE
TRIPS TO THE STORE FOR \$20 MORE
IN PARTS, ANOTHER HOUR TO REDO
THE FIRST HOUR OF WORK BECAUSE
I MESSED UP, AND \$80 TO BUY THIS
WHEN THE ONE I MADE BREAKS.



Credit: <https://xkcd.com/3233/>

Prepared By:

Date:

(complete the yellow shaded areas)

Calculated Power Consumption and Costs

Parts cost per year:	\$1,800.00	\$250.00	\$1,550.00
5 yr cost:	\$9,000.00	\$1,250.00	\$7,750.00
10 yr cost:	\$18,000.00	\$2,500.00	\$15,500.00
15 yr cost:	\$27,000.00	\$3,750.00	\$23,250.00

ECO10

NV10LT

Year 1	\$22,069.44	\$14,326.00	\$7,743.44
Year 2	\$44,138.88	\$28,652.00	\$15,486.88
Year 3	\$66,208.32	\$42,978.00	\$23,230.32
Year 4	\$88,277.76	\$57,304.00	\$30,973.76
Year 5	\$110,347.20	\$71,630.00	\$38,717.20
Year 6	\$132,416.64	\$85,956.00	\$46,460.64

Build a Comparison

ANALOG POWER	4.13 kW	5.5 kW	8.25 kW	11 kW	16.5 kW
MODULES	2	2	4	4	8
POWER SUPPLIES	4	4	8	8	16
UPGRADEABLE TO NEXT POWER LEVEL	✓		✓		✓
-20 DB HYBRID (ANALOG)	3.75	5	7.5	10	15
-14 DB HYBRID (ANALOG)	3.38	4.5	6.75	9	13.5
-10 DB HYBRID (ANALOG)	2.5	3.3	5	6.6	10

First compare apples to apples

Then look at advancements

Make sure to decide how much future proofing the budget can handle

Sweat the Details

- What could be missed?
 - Ancillary items
 - Verify power requirements
 - Cooling upgrades/downsizing?
 - Include an allowance for spares
 - Or CapEx that into future years against depreciation?
 - Budget for warranty extensions?

Presenting to Management

- An example...

If a station bills or underwrites \$150k per year, that works out to \$411.81 a day, or \$17.16 an hour or \$4.29 every 15 minutes.

If the power goes out a total of 100 hours a year, that's 1716.00 in lost revenue. **OR IS IT???** Once those ears are lost, they're not coming back as soon as you do.

If backup power for site and studio costs 30k to install, that's means it's going to take 17.5 years to recoup the cost, not counting maintenance and any failures of equipment.

- In this situation, perhaps look at ways to reduce the cost
 - lower transmitter output power? Maybe use a UPS to hold power up for short outages?

Document, Document, Document!

- Whether spreadsheet, flowchart, block diagram or crayon...
 - Graphics sometimes help make the point
 - Some utilities can provide data

Studio
Off air 22 hrs
Impact: \$377.52

Main Site
Off air 48 hrs
Impact: \$823.68

Aux Site
Off air 30 hrs
Impact: \$343.20*

* - Aux Site was only off 20 hrs while main was off, lessening impact

Presenting to Management

- First things first – what problem are we trying to solve?
 - Make sure to address the cost of not acting... or speak to the benefit of keeping the existing gear going for another budget cycle.
- Is there a way to monetize this?
 - Additional channels with additional underwriting, for example, or the ability to add graphics to improve value?

Once the Decision is Made...

- Look at budget
 - Funding: donors, state or federal funding options?
 - Eg. IAC (Illinois Arts Council) provided over 1.6 million in funding to public radio and television stations in Illinois in 2025
 - FEMA has provided funding for improvement of emergency alerting
 - National Endowment for the Humanities (NEH)
 - Search grant sourcing websites:
 - <https://grants.gov>
 - <https://www.instrumentl.com/browse-grants/public-radio-grants>
 - Seek professional advice

Once the Decision is Made...

- Look at budget
 - Sometimes leasing is a viable and useful option
 - Yes, you'll pay interest – but that can frequently be outweighed by savings
 - Tax credits are also a benefit
 - Leverage relationships
 - Bank
 - Ad campaigns

<https://www.nautel.com/press-release/maximize-savings-on-high-performance-nautel-equipment/>

Finance Payment Calculator

Payments As Low As **\$1,087.12**

How much does your equipment cost? Slider ☐ Input

\$5,000 \$2,000,000

\$50,000

What is your preferred financing term?

12 MONTHS 60 MONTHS

60 months

MONTHLY PAYMENT

\$1,087.12

Section 179 Tax Deduction	Net Equipment Cost
\$10,500	\$39,500

Summary

- There is a lot of confusing stuff out there
 - Do the math, and assign value to the intangibles
 - Use your resources – there may be other funding sources available
- Old gear can usually still be supported
 - Sometimes easier, more tribal knowledge
- Break it down and document everything!

Thank You

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