

LabPlus Networking the Flow Lab

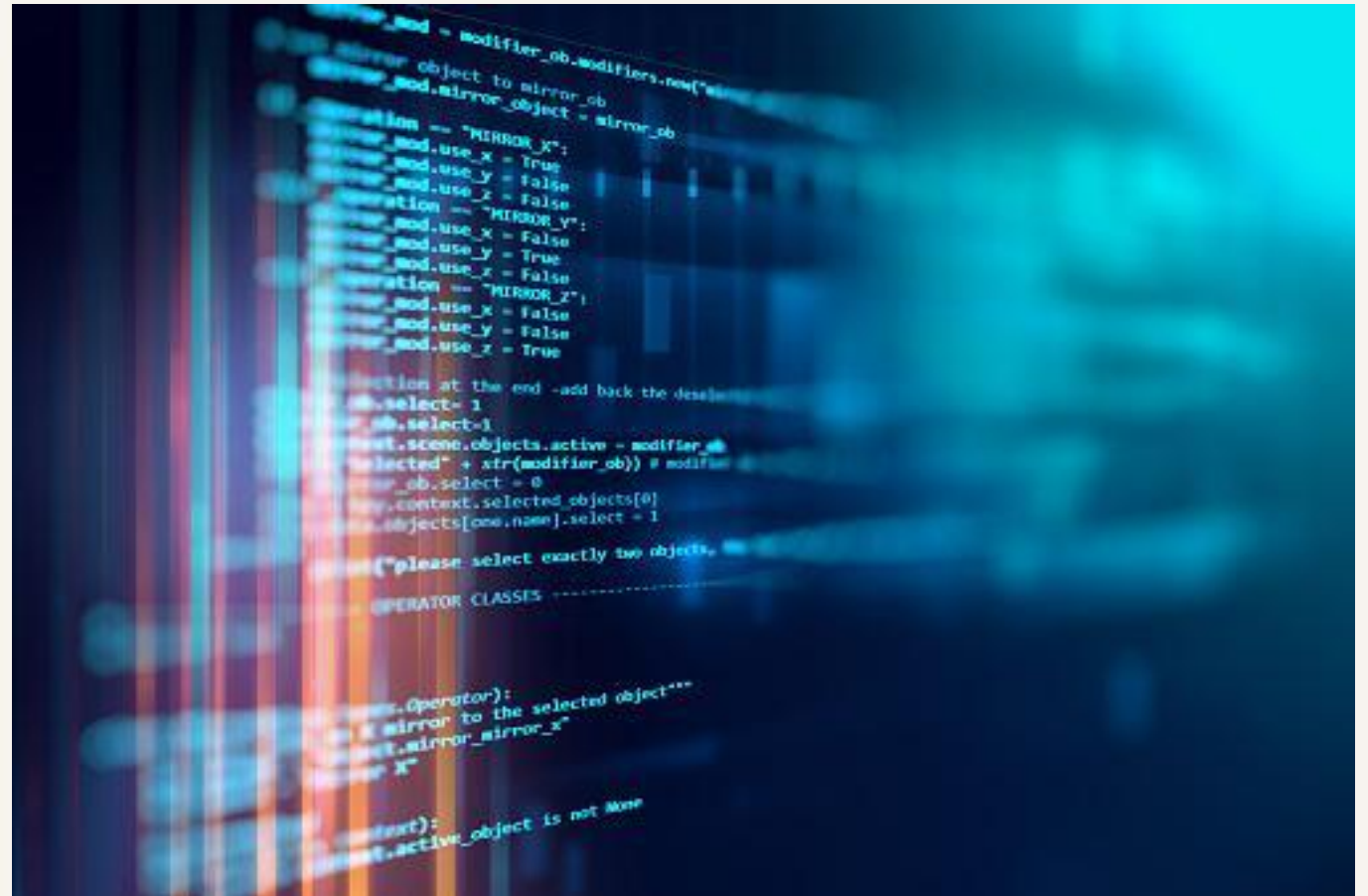
Danny Lim

Technical Specialist

LabPlus

Auckland City Hospital

Systems @ LabPlus





~ 2000

~ 2005

2012

2020

Evolution

Automated Sample Prep

- Labplus flow lab started automation with the BD FACSTM Sample Prep Assistant (SPA) in 2005.
- BD FACSDuet™ supplanted the BD FACSTM SPA in 2022.
- Upgraded to the BD FACSDuet™ Premium in 2024.
- In-built centrifuge and wash station
- Capable of integrating with a BD FACSLyric™ flow cytometer.

BD FACSLink™ Interface



Where to start?

Start

- What is reported
- How it is set up in LIS

Set up assays to export statistics

Select the test results and give it a name in BD FACSLink

Keywords & Expressions	BD FACSLink Result Name
<input type="checkbox"/> Lymphs Abs Cnt	LYMPHSABS
<input checked="" type="checkbox"/> CD3 %Lymphs	PCD3
<input checked="" type="checkbox"/> CD3+ Abs Cnt	CD3ABS
<input checked="" type="checkbox"/> CD3+CD4+ %Lymphs	PCD4
<input checked="" type="checkbox"/> CD3+CD4+ Abs Cnt	CD4ABS
<input type="checkbox"/> CD3+CD4+ %Lymphs (excl. dual pos.)	PCD4_NDP
<input type="checkbox"/> CD3+CD4+ Abs Cnt (excl. dual pos.)	CD4ABS_NDP
<input checked="" type="checkbox"/> CD3+CD8+ %Lymphs	PCD8
<input checked="" type="checkbox"/> CD3+CD8+ Abs Cnt	CD8ABS
<input type="checkbox"/> CD3+CD8+ %Lymphs (excl. dual pos.)	PCD8_NDP
<input type="checkbox"/> CD3+CD8+ Abs Cnt (excl. dual pos.)	CD8ABS_NDP
<input type="checkbox"/> CD3+CD4+CD8+ %Lymphs	PCD4_8
<input type="checkbox"/> CD3+CD4+CD8+ Abs Cnt	CD4_8ABS
<input type="checkbox"/> CD3+CD4-CD8- %Lymphs	PCD4N_8N
<input type="checkbox"/> CD3+CD4-CD8- Abs Cnt	CD4N_8NABS
<input checked="" type="checkbox"/> CD19+ %Lymphs	PCD19
<input checked="" type="checkbox"/> CD19+ Abs Cnt	CD19ABS
<input checked="" type="checkbox"/> CD3-CD16+CD56+ %Lymphs	PCD16_56
<input checked="" type="checkbox"/> CD3-CD16+CD56+ Abs Cnt	CD16_56ABS
<input type="checkbox"/> 4/8 Ratio	4_8_RATIO
<input type="checkbox"/> CD3+CD16+CD56+ %Lymphs	PCD3_16_56
<input type="checkbox"/> CD3+CD16+CD56+ Abs Cnt	CD3_16_56ABS

** BD FACSuite™ Clinical IVD 6-Color TBNK Assay*

Keywords & Expressions	BD FACSLink Result Name
<input type="checkbox"/> \$\$RC (N-N-45-3-N-N)	
<input type="checkbox"/> SAMPLE NAME (N-N-45-3-N-N)	
<input type="checkbox"/> CASE NUMBER (N-N-45-3-N-N)	
<input type="checkbox"/> \$DATE (N-N-45-3-N-N)	
<input type="checkbox"/> \$CYTSN (N-N-45-3-N-N)	
<input checked="" type="checkbox"/> WCC (PB) (N-N-45-3-N-N)	MNWC
<input checked="" type="checkbox"/> Lymph # (N-N-45-3-N-N)	MNLY
<input checked="" type="checkbox"/> CD3 Ave	MNT3
<input checked="" type="checkbox"/> KEYWORD 1 (N-N-45-3-N-N)	KEY1

** BD FACSuite™ LabPLUS MNTL Assay*

Statistics	BD FACSLink Result Name
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, Events (RA-62L-45-3-RO-4)	
<input checked="" type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, % Parent (RA-62L-45-3-RO-4)	MNT4
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, % Grandparent (RA-62L-45-3-RO-4)	
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, % Total (RA-62L-45-3-RO-4)	
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+8+, Events (RA-62L-45-3-RO-8)	
<input checked="" type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+8+, % Parent (RA-62L-45-3-RO-8)	MNT8
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+8+, % Grandparent (RA-62L-45-3-RO-8)	
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+8+, % Total (RA-62L-45-3-RO-8)	
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, 4/RA/62L, 4/RA/62L_UL, Events (RA-62L-45-3-RO-4)	
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, 4/RA/62L, 4/RA/62L_UL, % Parent (RA-62L-45-3-RO-4)	
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, 4/RA/62L, 4/RA/62L_UL, % Grandparent (RA-62L-45-3-RO-4)	
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, 4/RA/62L, 4/RA/62L_UL, % Total (RA-62L-45-3-RO-4)	
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, 4/RA/62L, 4/RA/62L_Naive4+RA+62L+, Events (RA-62L-45-3-RO-4)	
<input checked="" type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, 4/RA/62L, 4/RA/62L_Naive4+RA+62L+, % Parent (RA-62L-45-3-RO-4)	MRA4
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, 4/RA/62L, 4/RA/62L_Naive4+RA+62L+, % Grandparent (RA-62L-45-3-RO-4)	
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, 4/RA/62L, 4/RA/62L_Naive4+RA+62L+, % Total (RA-62L-45-3-RO-4)	
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, 4/RA/62L, 4/RA/62L_LL, Events (RA-62L-45-3-RO-4)	
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, 4/RA/62L, 4/RA/62L_LL, % Parent (RA-62L-45-3-RO-4)	
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, 4/RA/62L, 4/RA/62L_LL, % Grandparent (RA-62L-45-3-RO-4)	
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, 4/RA/62L, 4/RA/62L_LL, % Total (RA-62L-45-3-RO-4)	
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, 4/RA/62L, 4/RA/62L_TeffMem4+RA+62L-, Events (RA-62L-45-3-RO-4)	
<input checked="" type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, 4/RA/62L, 4/RA/62L_TeffMem4+RA+62L-, % Parent (RA-62L-45-3-RO-4)	TEM4
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, 4/RA/62L, 4/RA/62L_TeffMem4+RA+62L-, % Grandparent (RA-62L-45-3-RO-4)	
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, 4/RA/62L, 4/RA/62L_TeffMem4+RA+62L-, % Total (RA-62L-45-3-RO-4)	
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, 4/RO/62L, 4/RO/62L_UL, Events (RA-62L-45-3-RO-4)	
<input type="checkbox"/> All Events, Lymph SIZE AND Lymph CD45, CD3+4+, 4/RO/62L, 4/RO/62L_UL, % Parent (RA-62L-45-3-RO-4)	

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New Zealand Government

ents **Worklists**

Auto Export Options

Automatically export results

Location:

Create dated subfolder (yyyymmdd)

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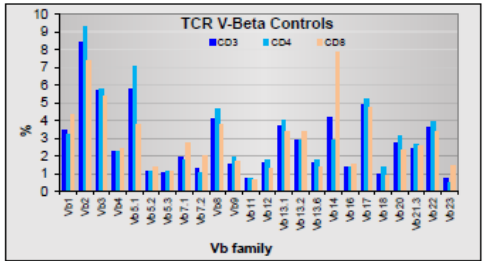
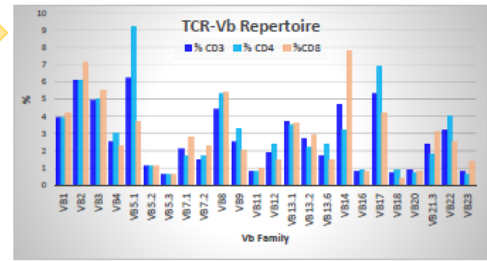
Lab Number:
Name:
NHI:
Acquisition Date:
Prepared By:
Date Prepared:

Lymphocyte Subsets

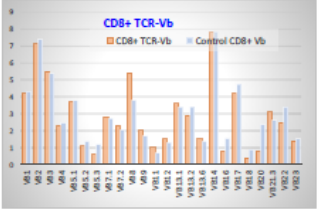
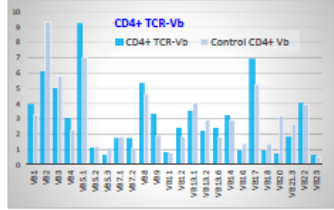
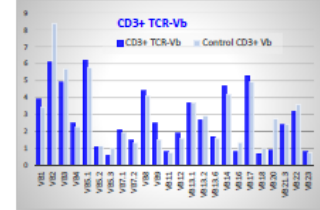
CD3%	66.6
CD4%	38.2
CD8%	23.5

Immune Deficiency: TCR-Vb Report

TCR-Vb Family	% CD3	% CD4	% CD8
Vb1	3.9	3.9	4.2
Vb2	6.1	6.1	7.1
Vb3	4.9	5	5.5
Vb4	2.5	3	2.3
Vb5.1	6.2	9.2	3.7
Vb5.2	1.1	1.1	1.1
Vb5.3	0.6	0.6	0.6
Vb7.1	2.1	1.7	2.8
Vb7.2	1.5	1.7	2.3
Vb8	4.4	5.3	5.4
Vb9	2.5	3.3	2
Vb11	0.8	0.8	1
Vb12	1.9	2.4	1.5
Vb13.1	3.7	3.5	3.6
Vb13.2	2.7	2.2	2.9
Vb13.6	1.7	2.4	1.5
Vb14	4.7	3.2	7.8
Vb16	0.8	0.9	0.8
Vb17	5.3	6.9	4.2
Vb18	0.7	0.9	0.4
Vb20	0.9	0.7	0.8
Vb21.3	2.4	1.8	3.1
Vb22	3.2	4	2.5
Vb23	0.8	0.6	1.4
Total	65.4	71.2	68.5



Sample ID	Assay Name	Export Date	Sample ID	Sample Name	Case Number	Acquisition	Populatio	Populatio	Populatio	Populatio	Populatio	Populatio	Populatio
	IDEF TCRV	#####				#####	0.6	2.1	4.9	0.6	1.7	5	0.6



Network Deployment

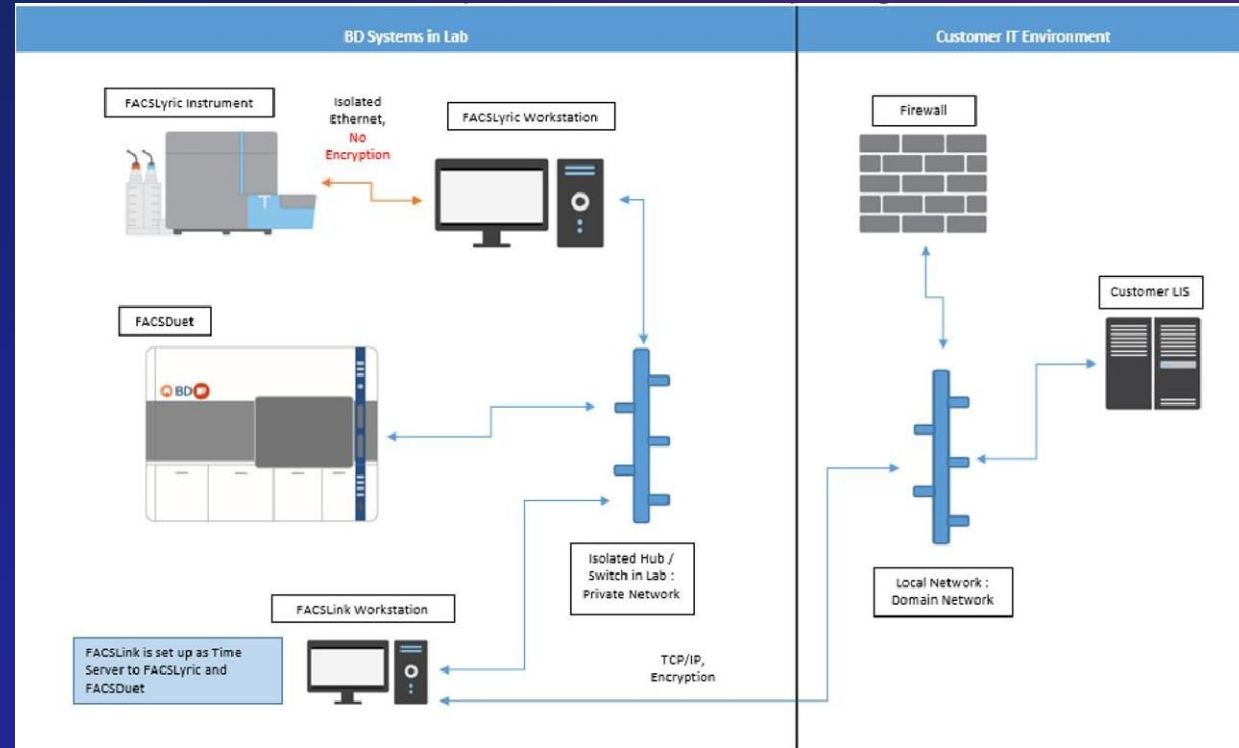
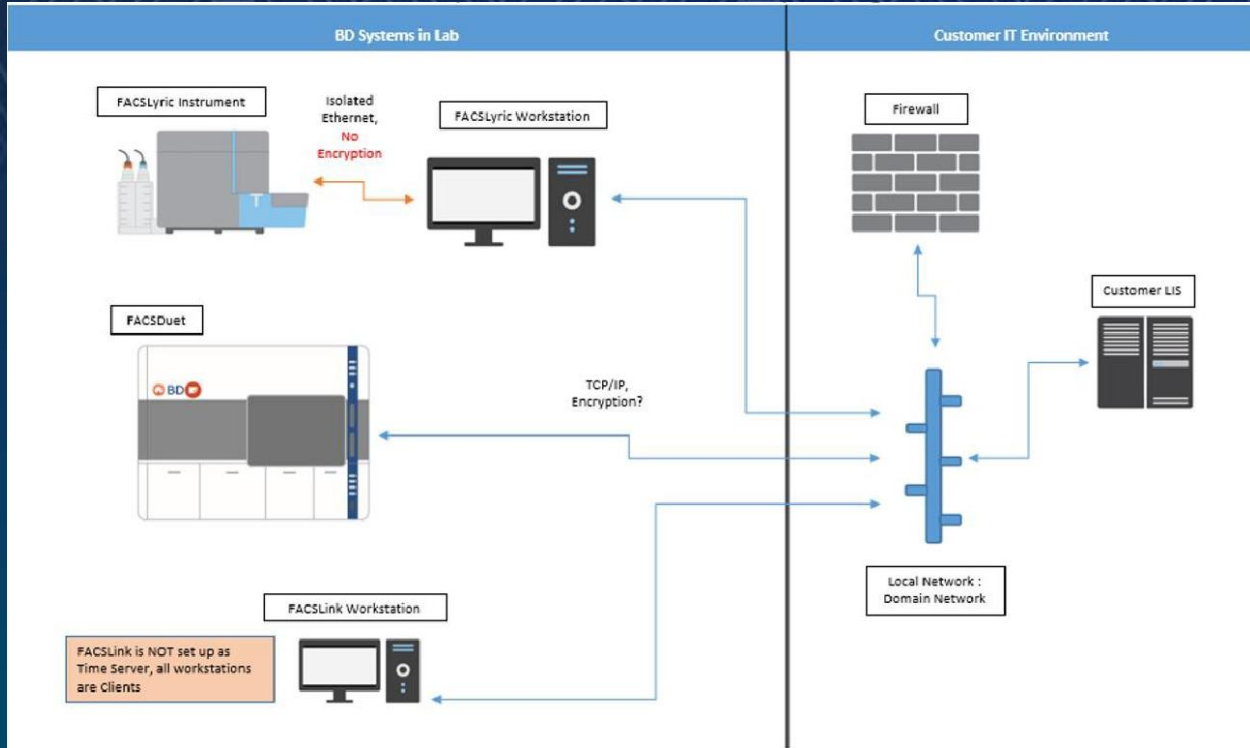
- The instruments need to be on a network
- A project was underway
- Parties to this project:
 - IT/Network Team
 - Our LIS team
 - LIS Provider
 - End user - that's us
- Overseen by Project Manager



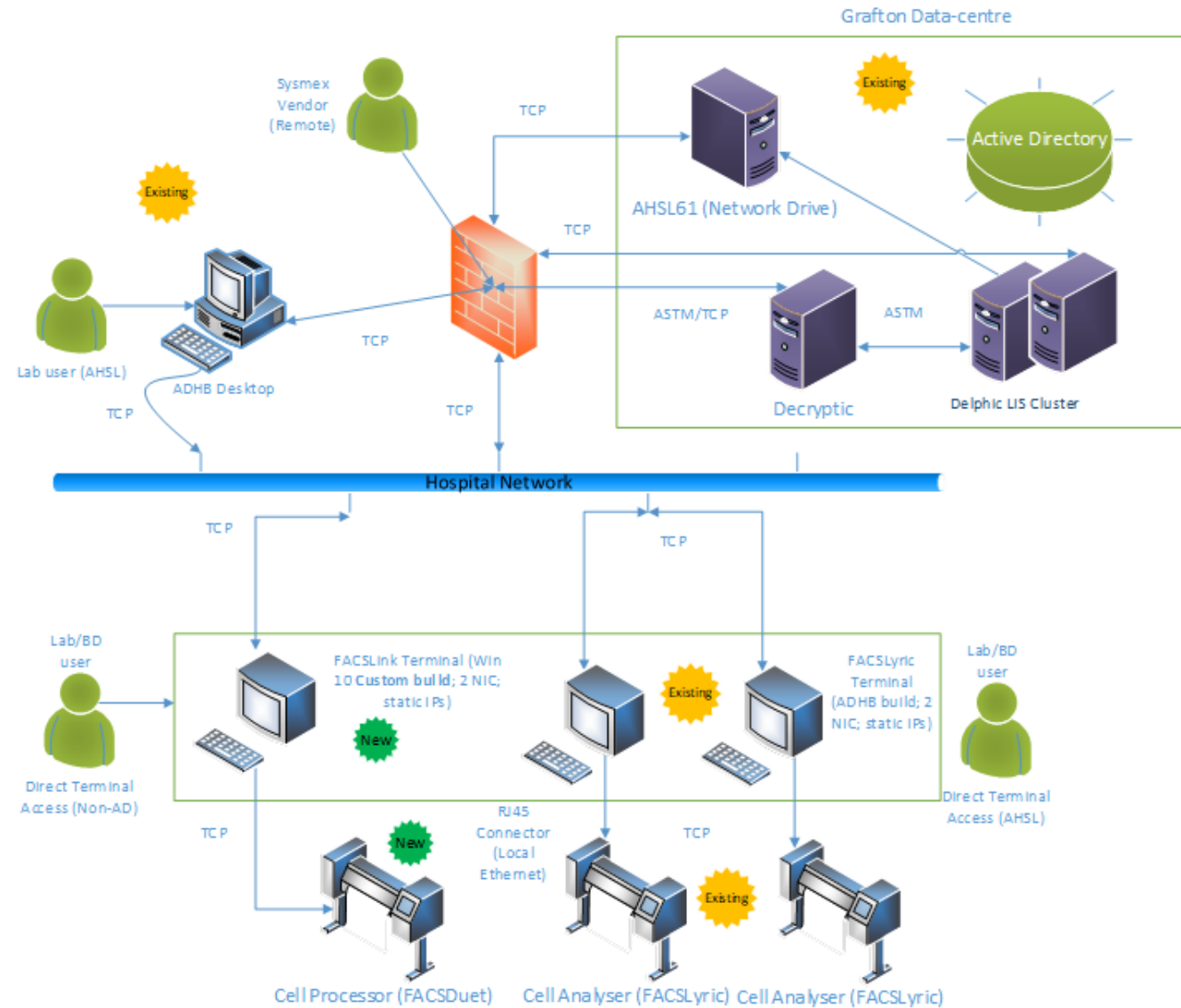
Lots of COFFEE



Deployment Options



Infrastructure View





Networking Naughty Bits



Privacy
Assessment

Cyber
Security



Interface Build

- Once the network was established, it was over to the LIS provider to build the interface
- Your experience may be different
- ASTM or HL7?
- Testing
- Fine tuning

Task Name	Status	Frequency	Last Run Date	Due Date	Blocked Run	Blocked Maintenance	Action
End of Day Clean	Pending	As needed	10/11/2024 1:21:40 PM		No	Yes	▶ Run
Probe Fluids	Finished	As needed	10/12/2024 1:28:42 PM		Yes	No	▶ Run
Probe Weather Instrument	Finished	As needed	10/12/2024 1:30:08 PM		Yes	No	▶ Run
Replace Bulk Tanks	Finished	As needed	8/4/2024 8:14:12 AM		No	No	▶ Run
Gas System Backup	Never Run	As needed			No	No	▶ Run
Optimize Database	Finished	Monthly	8/27/2024 8:24:22 AM	10/27/2024 12:00:00 AM	Yes	No	▶ Run
Replace Specimen Probe	Finished	Every 6 months	8/27/2024 8:25:26 AM	2/26/2025 12:00:00 AM	Yes	No	▶ Run
Replace Specimen Springs	Never Run	Every 6 months	-	12/26/2024 12:00:00 AM	Yes	No	▶ Run
Replace Specimen Valve	Never Run	Every 6 months	-	12/26/2024 12:00:00 AM	Yes	No	▶ Run
Check Specimen Springs and Valve	Finished	Every 2 months	8/26/2024 1:04:37 AM	10/27/2024 12:00:00 AM	Yes	No	▶ Run
Replace Peristaltic Tubing	Never Run	Every 6 months	-	12/26/2024 12:00:00 AM	Yes	No	▶ Run
Replace O2 Meter Filter	Never Run	Every 6 months	-	12/26/2024 12:00:00 AM	Yes	No	▶ Run

Go LIVE!

- It took a few years to get to this point.
- Not for the faint-hearted
- Automation is wonderful!
- Pairing automation with an interface – Priceless!

Was It Worth It?



Thank You!

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