

INNOVATION - WE ALWAYS FIND A BETTER WAY

INNOVATION MONTHLY RECOGNITION

August 2022



MONTHLY RECOGNITION

"What can we change to make things / processes / products better?"

PROJECT:

Web Tool System

TEAM:

- Krzysztof
Lukaszewski



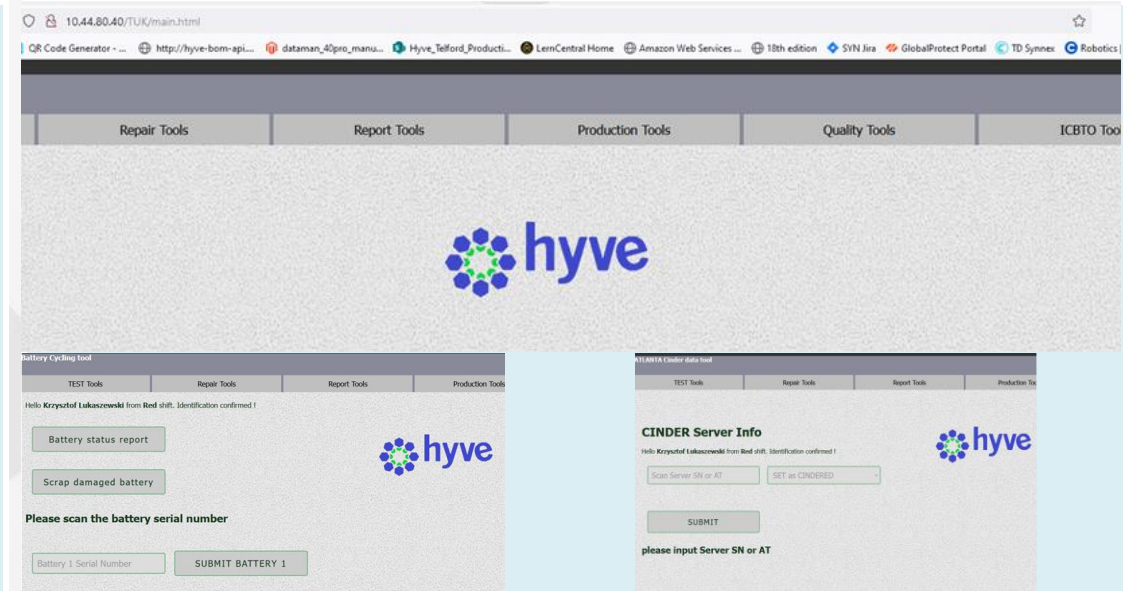
Web Tool System

Month: Aug 2022
Nominator: Ford Wang

Web tool system was created 4 years ago and continuously updated according to business needs. The system is built in php and connected to MySQL database. The scope includes repair/test/production/report/Quality/ICBTO control, to help other teams work more efficiently.

	Teamwork	Company Impact	Customer Delight	Comments
	L	M	M	A developed web-based tools system can make other teamwork easier
	Krzysztof Lukaszewski			

- With the new product and process introduced to production, some of the report and processes need to be done manually.
- Krzysztof created a web-based tool that converts those manual steps into automatic/semi-automatic process.
- A web-based tool system has a different app build for each functions.
- Those functions include repair strikes query, BBU cycles query, Cinder Server query, Rack Yield Report Summary, MAC generator, Switch FW check, and an Annapurna database.



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“What can we change to make things / processes / products better?”

PROJECT:

**Hyve Knowledge
Forums**

TEAM:

- James Mold



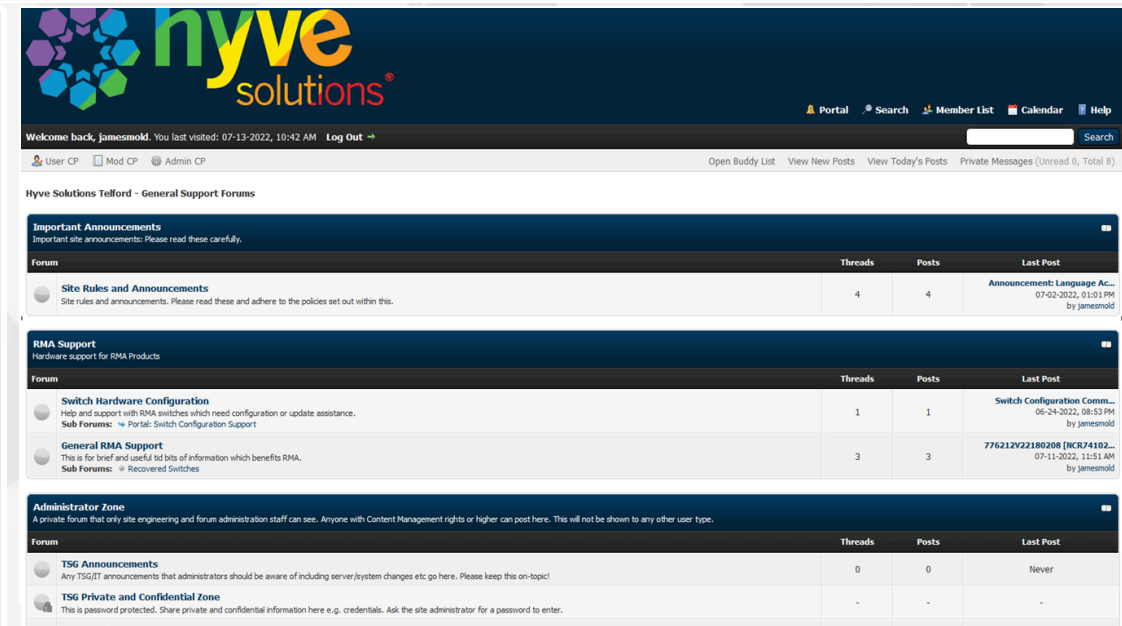
Hyve Knowledgebase Forums

Month: Aug 2022
Nominator: Ford Wang

Developed a special forum to help cater to the team's support requests in *Test and Repair* which is outside of the remit of a Test Process Instruction (TPI). The general gist is this is a web-based, internally hosted repository where authorised users can access any support materials to help fix common issues and share valuable information to help others. It also acts as a distance learning platform where we can share useful and essential skills with others and can be a friendly place for new starters to the business to have a hands-on reference guide.

	Teamwork	Company Impact	Customer Delight	Comments
	L	M	M	This is a web-based, internally hosted repository provides authorised users with access any support materials to help fix common issues, and share valuable information to help others.
James Mold				

- Internally hosted repository where authorised users can access any support materials to help fix common issues and share valuable information to help others.
- This also acts as a distance learning platform where engineers can share useful and essential skills with others.



MONTHLY RECOGNITION

“What can we change to make things / processes / products better?”

PROJECT:

**Woody Server
Diagnostic Tests**

TEAM:

- James Mold
- Bard Willson
- Marshall Bean



Woody Server Diagnostic Tests

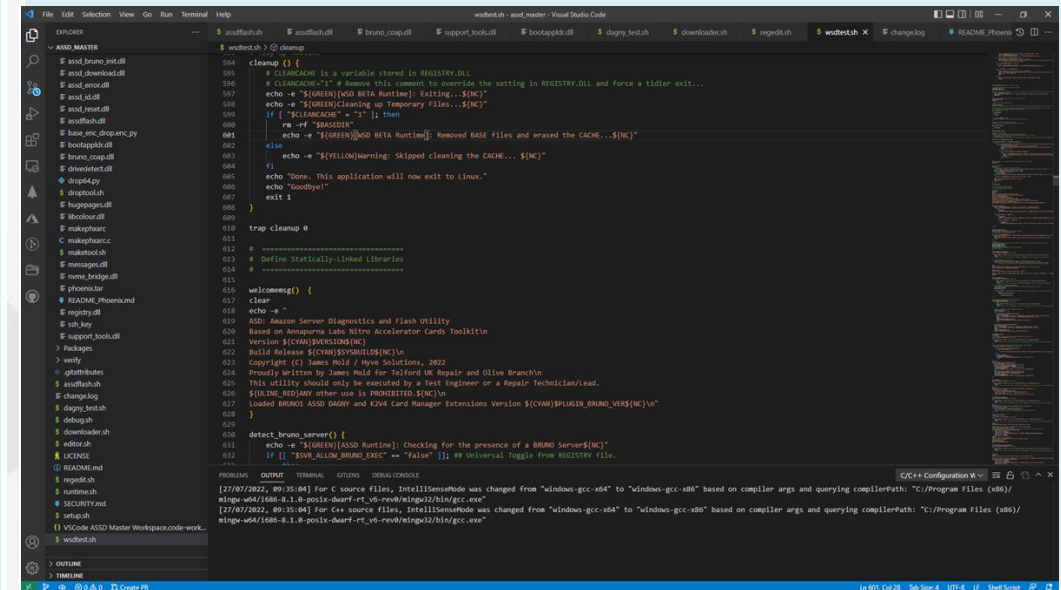
Month: Aug 2022
Nominator: Ford Wang

This is software which was written from scratch. The software provides at the moment test suite to support QBERTA16 and BRUNO Outpost servers by testing DAGNY drives outside of AWS SLT test.

At a minimum, this saves repair from having to run AWS SLT each time a drive is replaced instead running this suite of software to check if the drive is functional. The plan is to expand this in the future, providing the repair team a solid testing platform they can use to help diagnose servers with more effectively.

	Teamwork	Company Impact	Customer Delight	Comments
	M	M	H	The software provides at the moment a test suite to support QBERTA16 and BRUNO Outpost servers by testing their DAGNY drives outside of AWS SLT test. At a minimum, this saves repair from having to run AWS SLT each time a drive is replaced, instead running this suite of software to check if the drive is functional
	James Mold, Bradley Willson, Marshall Bean			

- The software provides at the moment a test suite to support QBERTA16 and BRUNO Outpost servers by testing their DAGNY drives outside of AWS SLT test.
- Saves repair from having to run AWS SLT each time a drive is replaced, instead running this suite of software to check if the drive is functional.



MONTHLY RECOGNITION

“What can we change to make things / processes / products better?”



PROJECT:

**Reducing Cost of Test
Units During
Development**

TEAM:

- Ashley Chang
- Tim Liao
- Nicole Chang
- ChiaXiang Yu
- David Fu
- Jainlin Chen
- Jay Shenoy

Reducing Cost of Test Units During Development

Month: Aug 2022

Nominator: Jay Shenoy

The cost of a single server unit often goes into deep five figures or even six figures for complex systems. The technology “commodities” contribute significantly to this cost leading to \$ issues for proper characterization. A close look at various validation tests indicates that we can use consumer grade (SSD, GPU), older units (eg NICs) or used commodities (HDD, GPU) for most tests and these are purchasable for pennies on the dollar. This enables us to not skimp on validation, and finish in a timely manner (the last part leads to customer delight).

	Teamwork	Company Impact	Customer Delight	Comments
	H	M	H	Out of the box thinking for test units is a habit that is finally taking hold. This nomination recognizes members, particularly the TPM, from three projects, for adopting this approach.
Ashley Chang, Tim Liao, Nicole Chang, ChiaXiang Yu, David Fu, Jainlin Chen, Jay Shenoy				

- Ashley and Tim outsourced the development of an adapter that allows using \$50 consumer SSD in E1.S systems. We can cost effectively test systems with 16-32 SSDs which E1.S enables. This has allowed adoption of this new SSD form factor.
- ChiaXiang Yu identified plentiful supply of \$30 4TB HDDs that met power weight and speed characteristics of \$400 new HDD. Hercules system has 96 drives. Nicole Chang drove the team to adopt the alternative supply of HDDs for as much testing as possible.
- David Fu and Jainlin Chen looked at using older gen GPUs for majority of testing and modified plans to use it. We were able to buy them at \$150-250 each and augment them with consumer GPUs at \$800. New server GPUs are \$5K+.

The screenshot shows an eBay order for a Tesla K80 900-22080-0000 NVIDIA 24GB GDDR5 CUDA GPU. The order was placed on July 13, 2022, at 5:34 PM, with an order number of 08-08862-46126. The total cost was \$649.69 for 6 items, sold by 'flakingdom'. The delivery timeline shows it was paid for on July 13, shipped on July 14, and delivered on July 16. The item price is listed as \$594.00. The item number is 25556838959. There are links for 'Track package', 'Leave feedback', 'Contact seller', and 'More actions'.



\$800 vs \$70 E1.S SSD

MONTHLY RECOGNITION

“What can we change to make things / processes / products better?”

PROJECT:

**Scout Chassis
Redesign: Fixing a
Customer Decision**

TEAM:

- Dennis Pham
- Jonathan Chou
- Binh Thai
- Pantea Nakhei
- Angeline Chou



Scout Chassis Redesign : Fixing a Customer Decision

Month: Aug 2022

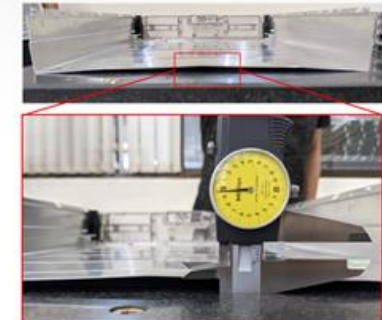
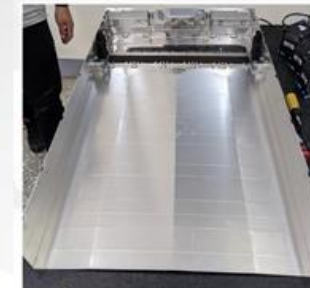
Nominator: Jay Shenoy

The customer is usually always right, but not always. And when they sometimes make a choice that has unintended consequences we can and should speak up. One such instance happened in the Scout program with a stringent chassis weight constraint. In order to meet this, an early decision was to use Aluminum for this 2U chassis. While sag problems were anticipated, the scale of it was not and we also uncovered a second problem during NPI.

	Teamwork	Company Impact	Customer Delight	Comments
	H	H	H	We brought this up respectfully to Woody and presented it along with a plan to address with a cut-in of redesign. They did their internal review and agreed with our feedback and proposal to fix this.
Dennis Pham, Jonathan Chou, Binh Thai, Pantea Nakhei, Angeline Chou				

- Aluminum is very light but also not rigid, so additional sag was expected and designed in with pre-bowing
- But this compensation is not precise, and we consistently ended up outside of sag and bow spec. Additional reinforcement to chassis was possible but...
- Aluminum also turned out to generate too much metal shavings during server assembly. That's not fixable.
- Using Aluminum was a Woody directive, but Hyve suggested that we abandon this decision with a redesign cut-in.
- During the redesign with steel, we eliminated some additional structures with an alternative L6 assembly process to just barely meet weight goals.

(A1) External Chassis Pre-Bow Measurements



- **Key Message:** Aggressive external chassis 10.5 mm pre-bow causes (1) integration difficulties, additional touch time and (2) particulate creation due to sliding nature of

hyve design.

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Thank you!

