

Task Completion and Accomplishments 2020

- **Build Domain knowledge :**

FDS/ HDF5 - Invested time in understanding FDS technology and different application inside it. As our team had little knowledge and expertise in this area. Involve various team members along with me to have a good grasp on FDS.

HDF5 technology is widely used across high computational and scientific areas in which data I/O is very huge and fast.

- Understand the design and implementation of HDF5 tech.
- **Build pipeline** for FDS application.
- Introduced HDF5-HPC concept and gave demo on functional and technical aspect of it.

TP, DRQ Module - Working on PR-CR(PR923 and PR932) developed more understanding on TP and DRQ module.

- **Operate with Excellence :**

1) **PR-923 - DRQ-DDR error** on RC686 airplane. It was a CR rather.

We identify **2 issue**:

- Multi meas HS category meas which has reference meas number are getting wrong data source id in view DB.
- DRQ application code is not handling error and exception well.

Contribution:

- Debug the code flow of DRQ for MDT generation through DRQ application.
- Identified the issue with respect to data source id in RIP_MDTD_MULTIMEAS_HSRCV_VW view.
- Provide solution and tested by submitting DRQ request for XMA,RMUX nodes.

Feedback received:



Sat 8/15/2020 6:51 AM

Neumann (US), Michael

FTCS Emergency Work In Area - Database Query Update in support of RC686T (747 Freighter)

To: Osmundson (US), Thomas J; Salinas-II (US), Federico; Fromwiller (US), James N; Price (US), Sarah; Buck (US), Laura A; Gallo (US), Kenia; Lam (US), Serena; Boals (US), Catherine A

Cc: Singh, Abhishek K; P-R, Mercy P; Pancheti, Sathwik; Ganiger, Govindaraju S; Neminathan, Chandran Jeyaram; Niedermeyer (US), Ken; Bailey (US), David C; Bachmeier-Evans (US), Mark L; Nguyen (US), Hung T; Benson (US), Brandon C; Neumann (US), Michael; Lopez (US), Eymard; DL TDRS Operations; Standley (US), Craig R; Mazza (US), Nicole L; Hoyos (US), Denise L; Cossich (US), Luann D; Bredberg (US), Bryan R; Van (US), Hung T; Moore (US), Jessica D; O'Dowd (US), Micheal D; Banerjee, Abhishek

The FTCS team successfully deployed this evening an updated database query to Production in support of PR Y923 (DDR Error on RC686T, 747 Freighter).

After the update, the previously failing data request ran to completion and will provide needed test data to the RC686T team.

Special thanks to Hung Van, Abhishek Singh, Mercy P-R, Sathwik Pancheti, Govind Ganiger, Hung Nguyen, David Bailey, Brandon Benson and Eymard Lopez for assisting in the investigation and finding the root cause and solution.

Cheers,
Michael Neumann

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2) **PR- 932 - TIRLMOD**

Issue- When BEAMSCE UML is added to WH001 and DAISY32 airplane then in total Meas list extra measurement is coming from config id - CN000065.

Contribution:

- Analyzed and debug the TIRL code flow.
- Identified the root cause coming from TIRL_MEAS_DETAILS_TEMP_FN.
- Identified the process of deleting measurement from FTCS.
- Gave multiple demos to make user understand the issue.
- Provided different solutions to the user to resolve the issue.

Feedback – From **Mike** “great work in finding out the root cause, this issue existed since long but never being noticed cause its rare scenario but the detective and detailed work done by development team is great.”

3) **PR- 916- DRQ job failed at DDR** due package details missing for node id (3310) measurement (5915672).

Contribution:

- Analyzed the issue and code flow in MIST side as well.
- Gave workaround for the issue as this is a CR change.

4) As FTCS being legacy application, there are >20k coverity warning are coming which includes high, medium and low severity.
Objective is to resolve 10% high coverity issue each sprint. Currently working on incorrect regular expression security vulnerability.

Contribution:

Functional Grouping of coverity issue based on different FTCS modules so that when we make code changes it is easy to perform regression test on functionality.

Solution for high Priority cov issue –

- **CSRF issue** – FTCS application had very high severity CSRF issue which is one of the most vulnerable when it comes to web application.

Contribution-

Identified and documented the CSRF issue existed in all our web application.

Make team aware about the challenges and limitation of CSRF on our projects.

Proposed solutions to mitigate CSRF issue as per coverity.

- **Adding salt to FTCS password**(SHAE Encryption)-
Currently FTCS application is using SHA-512 to store user password in our database. But as per coverity one-way hash without salt is not a secure way to store password.

Contribution-

- Identified the places where we are storing password in FTCS.
- Documented and demoed the impact of storing password without salt.
- Proposed solution to Meghana and Bryan (Architects).

Feedback-

From Architects – “Nice work done in identifying the high severity issues in terms of design. This analysis will be really helpful when we will migrate to next-gen architecture”.

5) WSSO implementation for MIST-**Contribution:**

- Created a new service CommonWebServices for WSSO implementation.
- CommonWebService Script and property file creation for all the environment.
- Handled FTCS side code changes to restrict the generation of invoker file from FTCS code base and it will directly invoke mist URL and invoker file will be generated by commonWebService code.

6) Oracle 12c upgrade from 11g version-

As our database is migrating from Oracle 11g to 12c we need to do impact analysis with respect to FTCS code.

Contribution:

Working closely with DBA Hung N in understanding and documenting the deprecated and desupported features.

From code perspective looking at impact of deprecated features in SQL codes ,TYPES and queries.

7) TIMADD Transaction Error WH001 –

User is not able to enter start time against WH001 airplane 003-59 test no for specific TIRL in TIMADD transaction.

Contribution-

Analyzing the issue, debugging TIM transaction code flow.

Identifying the proposed solution to the issue.

- **Delivery excellence & compliance- meet business goals and commitments**

- 1) **Insure first time quality in Kraken development**– Implemented 2nd phase of Kraken development by insuring we are not introducing new coverity issue and resolving as and when it comes.

Contribution:

- As senior members from Kraken team has gone, involved in designing and implementation of Kraken 2nd phase implementation.
- Architect the Low-level flow of 2nd phase services.
- Actively participating with Architects in designing features like On-Demand MDT, Notification service, Query services for partial/Full MDT creation.
- Created LLD design and technical part of P200 document for Kraken interface.
- Regression testing for Query services.

2) **IP website creation for PS** - Within a short span of time (as stretch activity), involve in designing and backend implementation of IP website incorporating all Boeing standards.

Contribution –

- Active member in making bridge between UI and backend services.
- Involve in designing of database schema for backend services.
- Conducting dev meetings and organizing the development flow and documentations.
- Written code for idea submission flow.
- Involve in preparing smooth demo for entire PLM capability team.

Feedback - From senior Management(Srini, Jeniffer) and other managers .

3) **Involve in High-criticality (L3)** - Production issues-support from Boeing India.

- **Drive Innovation/ Excellence thru Collaboration**

1) **Docker for webapplication:**

Collaborated in containerization of web application using Docker. Ideally, it requires 4 to 6 hours for local environment setup and Productivity over user-story of developer starts from Day2.

With docker images, developers can only focus on writing quality code without worrying about the initial configuration/setup required.

Contribution

- Create images for OAPI and CECFG application.
- Written scripts which will handle all dependencies and properties of OAPI and CECFG application and will build/deploy application.
- **Docker implementation demo in workshop** which showed the potential of removing limitation of current CI/CD pipeline and synergy server which will ease and uniform build and deployment in all env.

Feedback – From Mike:

From: Neumann (US), Michael
Sent: Monday, September 28, 2020 2:53 PM
To: Banerjee, Abhishek <abhishek.banerjee@boeing.com>; Neminathan, Chandran Jeyaram <ChandranJeyaram.Neminathan@boeing.com>
Cc: Bachmeier-Evans (US), Mark L <mark.l.bachmeier-evans@boeing.com>; Standley (US), Craig R <Craig.R.Standley@boeing.com>; Hoyos (US), Denise L <denise.l.hoyos@boeing.com>
Subject: FTCS Roadmap - Service Architecture Work Shop

Abhishek, Chandran,

I would like to again express my gratitude and congratulations to your team for being well prepared and doing a great job in presenting various concepts and technologies during today's 4 hour Service Architecture Work Shop.

We did not only have FTCS and MIST Bangalore/Seattle team members in the workshop, but also a good number of SME's and Architects from BT&E, including Analysis, Instrumentation and the Kraken team. It was vital that we had a good start for the workshops and meetings scheduled throughout this PI, and listening to the questions and comments from attendees, it was clear that your team showed their competence and knowledge for tackling the major challenges ahead of us.

Cheers,
Mike

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From Mark:

From: Bachmeier-Evans (US), Mark L
Sent: Tuesday, September 29, 2020 10:02 AM
To: Neumann (US), Michael <Michael.Neumann@boeing.com>; Banerjee, Abhishek <abhishek.banerjee@boeing.com>; Neminathan, Chandran Jeyaram <ChandranJeyaram.Neminathan@boeing.com>
Cc: Standley (US), Craig R <Craig.R.Standley@boeing.com>; Hoyos (US), Denise L <denise.l.hoyos@boeing.com>
Subject: RE: FTCS Roadmap - Service Architecture Work Shop

I want to second that...I think you all did an amazing job today, and were really well prepared (you included Mike). Workshops normally start off a bit awkward because you're organizing a large number of people (*...who are trying to figure why they are there and how they can be of most help* ☺).

I think you all hit the ground running and eliminated any chance for awkwardness (that's hard to do, *especially in our virtual environment*). This is a great start and foundational step for our future workshops, so way to put that best foot forward today. Very professionally done!

Mark

From Chandran:



Tue 9/29/2020 9:40 PM

Neminathan, Chandran Jeyaram

RE: FTCS Roadmap - Service Architecture Work Shop

To: Bachmeier-Evans (US), Mark L; Neumann (US), Michael; Niedermeyer (US), Ken

Cc: Standley (US), Craig R; Hoyos (US), Denise L; Banerjee, Abhishek; Banerjee, Abhishek; Chandupatla, Sai Kumar R; Engimoori Mohan Raj, Rajesh; Ganiger, Govindaraju S; Kabra, Rahul; Manikandan, Krupaharan; Narasimhamurthy, Meghana; Pancheti, Sathwik; Pati, Niranjana; P-R, Mercy P; Prachi, Prachi; Puthenparambil Suresh, Remya; Siddhu, Prabhjyot; Singh, Abhishek K

Good Morning, Mike and Mark.

This is out-and-out team effort. Even though there was lack of development work and budget, the team stayed motivated. COVID-19 lockdown and WFH made it even more challenging. Just how the phrase goes “When the going gets tough, the tough get going”, the team took this as an opportunity and kept moving forward, during these difficult times. What you saw yesterday was the result of all the hard work the team has put through over the last 6 months, apart from the regular planned PI deliverables.

I would like to thank Ken for patiently listening to all the initiatives that we have taken so far, allowing us to learn and discover ways to make FTCS-MIST better.

Thanks again for the opportunity. I can assure you that the team is up for the challenge ahead.

Regards,
Chandran.

2) Demo in coming workshop with all cutting-edge tech-

Actively involved in designing an application which combines all DevOps best practice strategy and showcase demo in Roadmap meeting. Tech likes: Test automation (UI & API), SPLUNK, KAFKA, DOCKER, DEPLOY to PCF.

Contribution:

Taking care of Kafka and Docker integration.

3) BTEC idea submission and selection (Real Time Flight Data Analytics enabled by Cloud Infrastructure and Services) -

Out of many ideas from product system, just 3 idea got selected and ours was one of the innovative one.

Contribution:

- Analyzing the problem statement and limitation of current process.
- Pitching in with ideas on how we can perform different analytics over real time data.
- Gone through various IEE papers and journals on real time flight and cloud computing on Aviation and Aerospace.
- Implemented a POC on Octave tool for performing predictive analytics on real time data for Multivariate Altitude and Hydraulic flow vs temp using Gradient-descent and Linear regression concepts of ML.

Feedback on BTEC paper:

From: Sherwood (US), Megan L
Sent: Tuesday, May 12, 2020 12:17 AM
To: Chandupatla, Sai Kumar R <SaiKumar.R.Chandupatla@boeing.com>
Subject: BTEC 2020: Abstract Selected for Presentation

To: Sai Kumar R Chandupatla,

I am happy to inform you that your abstract has been selected to be presented at the 2020 Boeing Technical Excellence Conference. Please review all of the following information regarding your BTEC 2020 participation.

Presentation:

"Real Time Flight Data Analytics enabled by Cloud Infrastructure and Services" (ID# B270466), as part of the **"Software & Information Technology"** track.

 Reply  Reply All  Forward  IM



Fri 7/24/2020 10:17 AM

Banerjee, Abhishek

RE: Join us for **BTEC** next week

To:  Neminathan, Chandran Jeyaram; DL Product Systems - Banerjee - PLM Capability Domain

Wonderful,

All the best, team! Proud moment for us!

Regards
Abhishek

From: Neminathan, Chandran Jeyaram
Sent: Friday, July 24, 2020 9:50 AM
To: DL Product Systems - Banerjee - PLM Capability Domain <DL-ProductSystemsBanerjeePLMCapabilityDomain@exchange.boeing.com>
Subject: FW: Join us for **BTEC** next week

Good Morning Team.

We will be presenting our **BTEC** paper on 28th July 2020.

Track	BTEC ID	Presenter Name	Date Q&A Window on inSite	Time Q&A Window on inSite (Pacific Standard Time)
SIT-General Session	B270414	Aggarwal, Anu	Tuesday July 28	7:30-8:00pm
SIT-General Session	B270221	Capel, David	Tuesday July 28	3:30-4:00pm
SIT-General Session	B270466	Chandupatla, Sai Kumar R	Tuesday July 28	5:30-6:00pm

- **Employee Engagement & Growth**

- Contribution**

- Actively involved in team building activities. Focal for organizing different events within team.
 - During covid time and WFH conducting weekly team building activity.
 - Involving and encouraging other team members to participate in organizing activities and events.
 - Helped different team members in grooming them technically by knowledge sharing and build confidence to take crucial responsibility and own some modules within FTCS.
 - Technically learned a lot about UNIX from writing scripts for various build and deploy tasks.
 - Learned/ refreshed topics like Hibernate, Springboot, Docker.
 - Being involve in various low-level design increased the capability of speedy turnaround on converting abstract requirements to high quality implementations.

- **Contribution to Organization Initiatives**

- Actively participated in voice of Product systems events and encouraged other members to equally participate.
 - Leded my team in Quiz competition happened for product system team and qualified till semis.
 - Innovation week initiative- Active member of PS innovation website creation and participated in quiz as well.
 - Participated in Idea Generation Workshop happened in Feb,20.