

Session Abstracts for Friday, July 26, 2019

Clean Code that Works: Test-Driven Development and xUnit – Patrick Behr

There are many benefits to testing, and it doesn't have to be difficult.

Come find out how test-driven development will help you:

- * Inspire confidence by ensuring that all your code is always tested
- * Know exactly what you should do and when you are done
- * Encourage simple application designs
- * Fearlessly refactor and redesign application

MariaDB on IBM i – Erwin Earley

MariaDB provides the database component of the ubiquitous LAMP stack and it is available for IBM i. This session will explore a number of concepts for MariaDB including installation, management, and troubleshooting. Additionally, the session will explore the db2 storage engine for MariaDB which enables applications written with MariaDB APIs for storage/retrieval of data to actually store/retrieve that data in DB2 tables.

Building and managing PHP applications fast for IBM i – Erwin Earley

PHP is the top platform for building and modernizing IBM i applications. In this session we will discuss how features of Zend Server can be leveraged to streamline the development process as well as fast-tracking the management of the PHP environment.

Exploring NoSQL Databases – Erwin Earley

Open Source Databases are one of the fastest growing topics of interest today and NoSQL databases are no exception. NoSQL databases provide for storage and retrieval of data that is modeled in ways other than tabular relations used in relational databases. This session will explore why NoSQL databases are important as well as showing how to work with some of the more popular NoSQL databases such as MongoDB.

IBM i Meets IoT – Jesse Gorzinski

Want to communicate between your Node.js applications and small devices? Come learn about MQTT - a machine-to-machine (M2M)/"Internet of Things" connectivity protocol. This talk will provide an introduction to MQTT, examples of how to use it with Node.js and then finish up with some demos of using on IBM i as well as using it for home automation.

Learning Objectives:

1. Learn what MQTT is and its key characteristics
2. Learn how to use MQTT to connect devices to your applications

Conquer the IBM i World with Open SSH – Jesse Gorzinski

Yes, you can rule the (IBM i) world with just one port! Come discover the many tasks you can do with SSH, including: - Accessing the filesystem - Doing file transfers - Editing files - Running simple SQL - Running CL commands - Looking at active jobs - Accessing a git repository - Running Access Client Solutions (with X11 forwarding) for more advanced tasks

Learning Objectives:

1. Discover the many things you can do with SSH on IBM i
2. Understand the implications of being able to perform many operations on a single port.

Managing Open Source on IBM i with Containers and Chroot – Jesse Gorzinski

You may have heard about the latest news with open source: RPM's! As a system administrator, you may have lots of questions. What does this mean for me? Come to this session to demystify this bold new world. In doing so, you will learn important facets of open source management, like checking software levels, installing updates, etc. What best practices should you follow? Also, we will explore the support options for the open source technologies you are leveraging.

Learning Objectives:

1. Learn the basics of RPM-based administration of software
2. Understand the security model behind the latest open source offerings
3. Discover ways to acquire support for your open source ecosystem.

It's IBM i, Damn It! Why the Name Matters – Jesse Gorzinski

That's right, it's IBM i! Not iSeries, System i, AS/400, or i5. Come to this session for a civil look at why it's important to use the operating system's correct name, whether you're hiring, job-searching, looking for solutions, or anything else. It's definitely not your grandmother's AS/400 anymore!

RPG! It's Alive with New Treasures! - Charles Guarino

“New” RPG Free Form enhancements? Well sure, but that happened at 7.1. Time marches on and so do the enhancements. Today's RPG is living, vibrant and ever-evolving, keeping pace and meeting the requirements and needs of TODAY'S programming community. If you haven't been keeping up you are missing out on the many new treasures that will not only improved the readability of your code but also the reliability. Long live RPG!

RDi and Git, The Basics - Charles Guarino

What are the steps to getting your source code stored in a Git repository, be it on IBM i or externally, such as on GitHub? We will go through the entire process step by step and get you on your way. Attend this session and you will see how to implement RDi and Git - The Easy Way!

The “Best Stuff” of Advanced RDi topics - Charles Guarino

Once you have a solid basic understanding of RDi you will want to attend this advanced session that demonstrates many of the finer points of application development. Here is where you can truly customize RDi to watch your development time shrink and performance soar.

The Business, Science, and Uses of ILE Service Programs - Charles Guarino

Service programs have been around for some time. In fact, quite some time. Perhaps you've even bumped into one in your professional travels. You will certainly find them on the road to application modernization. This session focuses on what they are, how to implement them and making them a regularly used asset during your application development. Topics include service programs, program signatures and using binder language source.

Advanced Embedded SQL – Birgitta Hauser

While native I/O can only be used with programming languages such as RPG and COBOL, (embedded) SQL can, or even must, be used by other programming languages. The main goal of embedded SQL is accessing and modifying data in SQL tables. However instead of using embedded SQL in the same way as native I/O, it makes more sense to join multiple tables or

views, merge different sub-selects and even aggregate data in a single SQL-statement (Set based thinking). The result can be either processed sequentially or with a single block fetch read into an array data structure. SQL scalar functions can be used directly in embedded SQL without accessing any table or view. Beginning with Release 7.1 result sets returned by stored procedures can be directly consumed with (embedded) SQL. All kinds of documents (for example XML documents and text files) as well as audio and video files can be stored in the IFS or inserted as large objects into SQL tables. With embedded SQL those files cannot only be copied, but also written into the IFS and directly read from the IFS. In this session you'll discover these secrets!

Learning Objectives:

In this session you'll learn some tricks are not widely known to make embedded SQL more convenient. This session will also show in examples how to consume result sets with embedded SQL and how to read and write IFS files with embedded SQL.

OLAP (Online Analytical Processing) Functions – Much More than Running Numbers! - Birgitta Hauser

The first OLAP Functions were already introduced with Release 6.1, for building running numbers and ranks, in a specific sequence and even with the ability to restart numbering at a predefined level. At release 7.3 a bunch of additional OLAP functions and enhancements for existing OLAP functions are introduced. With these enhancements it is possible to easily build running totals or averages with or without level breaks. Data cannot only be accumulated over all rows, but also within a specific range. It is easy to access and compare the first, previous, next or last occurrence of the data within a partition. This session will give you an overview over the available OLAP functions and how they can be exploited.

Learning Objectives:

Dissecting In this session you will learn which OLAP functions are available and how they can be used for and how they can be exploited especially for statistical reports.

Generating JSON Documents with SQL- Birgitta Hauser

JSON (Java Script Online Notation) is a data exchange format like XML, however JSON is simpler, less verbose and can be faster parsed than XML. In this way JSON becomes more and more important especially when data is exchanged by RESTful web services. The use of XML declines in favor of JSON. With Release 7.3 TR 3 a bunch of scalar and aggregate functions were integrated into SQL, for generating JSON objects, arrays and for combining JSON components into complete documents. The focus of this session is to generate JSON documents.

Learning Objectives:

Get an introduction into JSON basics. Learn how JSON object and arrays can be generated, concatenated or nested and composed into JSON documents.

Consuming JSON Documents and Web Services with SQL - Birgitta Hauser

JSON becomes more and more important especially in RESTful web services. The use of XML declines in favor of JSON. With the JSON_TABLE table function JSON documents can be parsed, converted into a relational representation and data picked specifically out. Additional scalar functions allow SQL to directly access JSON documents located within the IFS (Integrated File System) or in source physical file members. Last but not least IBM provides SQL functions for getting access to web services. In composition with the JSON_TABLE function the JSON answers returned by web services can be consumed.

Learning Objectives:

Learn how JSON documents located in either the IFS or a column in a table or JSON answers from web services can be parsed with the JSON_TABLE table function, converted into a relational representation and data specifically selected. You'll also get an overview over the new http-functions and how to use them for getting access to web services.

IMHO SQL's Most Useful Features – Simon Hutchinson

There has been a lot of new Db2 for i (SQL) functionality added to IBM i in the last few releases and Technology Refreshes. Many of them allowing us to access data previously we had to use complicated APIs for. Simon will give some examples of his favorite SQL, and show how he is using them in the real world.

Cool Things in Navigator to be a Rock Star Administrator - Pete Massiello

IBM Navigator for i is a powerful new tool to better manage your i environment. Get expert advice for installation and set up to make sure you get this powerful tool up and running at peak efficiency. Step through the functionality of this product and learn how to leverage the Performance Data Investigator to turn the collection services data into graphs you can use to identify performance issues. Learn ways to protect your system from intrusions, as well as close security holes such as FTP. See how this tool can help you select and install Logical files on your system to improve performance. Learn about the enhancements to this valuable tool in the release of version 7.3, while we see how this tool provides tips and techniques for better and more easily managing your IBM i.

Learning Objectives:

- 1) Learn how to close down various TCP/IP servers like FTP from intruders.
- 2) How to use the Index Advisor to improve performance.
- 3) Identify if someone is trying to access your IBM i with Intrusion Detection.
- 4) Performance Management graphs.

How to Successfully Upgrade to IBM i 7.4 & 7.3 - Pete Massiello

When doing an upgrade to IBM i, there is more work involved in the planning of the upgrade than in the actual upgrade itself. When you have done the planning, the actual upgrade is simple. We will cover planning tips, pre-requisites, and then post installation requirements. Your upgrade isn't complete until this last step is done. While this presentation will focus on upgrading to 7.4 & 7.3, if you are upgrading to an earlier release (7.2, 7.1), we will also cover those releases.

Learning Objectives:

- 1) Preparation steps required for OS Upgrade.
- 2) Compatibility issues between releases.
- 3) Requirements for upgrading.

HMC, IBM I, FSP, & Firmware: Putting All the Pieces Together - Pete Massiello

Come to this session and dissect all the new components and concepts involved with partitioning your IBM Power Systems. Learn how all the pieces connect to each other, what you need to do to set them up, and how to manage and upgrade them. Get a handle on the various components of the Hardware Management Console (HMC), the Flexible Service Processor (FSP), and the Advanced Systems Management Interface (ASMI). Find out about the firmware in your machine, and how to make the required updates to it in an LPAR environment or on a standalone machine. Get tips for upgrading and setting up communications between the HMC and FSP as well as insight on where the ASMI fits in. Leave this session with up-to-date

knowledge on these important hardware features of IBM Power Systems & IBM i

Learning Objectives:

- 1) Understand how to upgrade & update your HMC.
- 2) Understand how to upgrade your FSP.
- 3) Learn how everything connects and interacts.

Tips and Tricks to Improve System Performance and Save Disk Space – Pete Massiello

What can you do to stop the rampant growth of data that's eating up disk space? How do you improve system performance? Come to this session to find out how to make the most out of your existing configuration by leveraging the many optimization and cleanup techniques that are a part of i5/OS, including reorganization of physical files, sharing of access paths, and using the DISKTASK command. Pinpoint how to reduce your disk I/O by reorganizing files and clean up your system using the Retrieve Disk Information (RTVDSKINF) and Retrieve Directory Information (RTVDIRINF) commands. Learn how sharing access paths can reduce disk utilization and memory faulting. Know your options for reorganizing your files while your users continue to access them.

Learning Objectives:

- 1) Understand some easy ways to gain performance with reorganization of physical files.
- 2) How to find objects on your system that are growing or that you aren't using.
- 3) Optimization of other objects on your system.

IBM i in a Modern Compute Environment - Richie Palma

Ever wonder how companies harness the massive performance of POWER8 along with the reliability and scalability of IBM i while remaining agile and competitive in a world dominated by mobile, analytics, and cloud? Let's face it, our line of business counterparts are demanding, but for good reason. The ability to quickly deliver innovative technology to the front lines of our businesses can mean the difference between surviving and thriving in our fast-paced economy. In this session we will look at IBM i on IBM Power Systems as it is today, a reliable, scaleable, and modern computer environment. You will find out why some of the most well-known brands and biggest organizations on the planet run IBM i and why we don't always hear about it. You will hear some of my experiences with flipping organizations who have intentions of moving off the platform, to companies who are innovating on the platform. We will surface the typical objections to modernizing on IBM i and how you can knock those objections through the conference room wall.

Learning Objectives:

- 1.) You will find out why some of the most well-known brands and biggest organizations on the planet run IBM i and why we don't always hear about it.
- 2.) You will hear some of my experiences with flipping organizations who have intentions of moving off the platform, to companies who are innovating on the platform.
- 3.) We will surface the typical objections to modernizing on IBM i and how you battle against them.

Business Uses for Python on IBM i

Does Python on IBM i have a practical use or is this just a solution looking for a problem? In this session we will explore the typical use cases for Python in the open source community and apply some to IBM i. In addition, specific IBM i centric use cases will be explored to give the attendee the opportunity to judge for themselves how to best leverage Python in the combined open source and IBM i space.

Learning Objectives:

- 1) Learn how Python is used in Open Source environments.
- 2) Explore how Python can be exploited in IBM i centric environments
- 3) See several examples of open source Python applications in action on IBM i

Advanced Python Programming on IBM i - Mike Pavlak

Building upon the introductory session, this session will address the object oriented world of Python programming and introduce several frameworks that make Python programming such a powerful resource in the data center. Both Frameworks and Micro Frameworks will be explored. Additional topics will include logging, testing, debugging, pandas and much more.

IBM i Security for Programmers - Robin Tatam

Although IBM i is one of the most secure-able platforms available, the protection of critical data is often undermined by weak security design at the application level. This session covers the main considerations that a programmer should be aware of as they design and code their applications:

Learning Objectives:

Attend this session to learn about:

- Object ownership
- Adopted authority
- Public and private authorities
- Command line permission
- Client-server considerations

IBM i Security: The Good, Bad, and the Downright Ugly - Robin Tatam

Don't miss out on more than a decade's worth of market research on the security configurations of IBM i servers and the successes and failures of organizations that run critical applications on them. HelpSystems has audited thousands of IBM i servers around the world, gaining extensive, real-world insight into the deployment state of IBM i security controls.

Learning Objectives:

Join the author of the wildly popular "State of IBM i Security" study for a recap of eye-opening statistics from the current report. Along with the results, this session provides review and tips in seven configuration categories:

- Network-initiated commands & data access
- Server-level security controls
- Profile and password settings
- Administrative capabilities
- Public accessibility to corporate data
- System event auditing
- Virus scanning Learn what steps your own organization must take to address these continually overlooked and dangerous security exposures—including some that are often missed by professional auditors!

Configuring and Using IBM i Auditing Features – Robin Tatam

Did you know that IBM i includes powerful auditing features? Join this session to learn about activating and utilizing IBM i's built-in forensic capabilities.

You will learn about:

- Security audit journal
- Audit data management

- Configuring the 'Audit' system values
- A user profile's *AUDIT special authority
- Object auditing
- User auditing
- Data reporting options

You will also learn about what system auditing does *not* capture, and how to prevent that from causing you to fail an audit.