

# Université IBM i 2018

16 et 17 mai

IBM Client Center Paris



Session S45 - Build a Social Media Dashboard with Db2 for i & Node.js

*IBM i & Open Source Tutorial & Demo*

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# IBM Systems

# Plan de la présentation



- Introduction: Open Source & IBM i
- Tutoriel / Démonstration – Prototypage avec IBM Watson, Db2 for i & Node.js
- Questions / Réponses : Que faire en sortant de cette session?

# IBM i OSS : A growing community



Many developers & experience feedback online....

<https://www.ibm.com/developerworks/learn/ibmi/index.html>



[#IBMiOSS](#)



<https://bitbucket.org/ibmi/opensource/wiki/Home>

developerWorks®

Tutorials & training

Tools & code

Communities

Articles & tutorials



IBM i

## Getting started with IBM i

Learn about the rich and unique history of IBM i, from its level of integration to the underlying architecture of the OS itself.

John Eberhard



IBM i

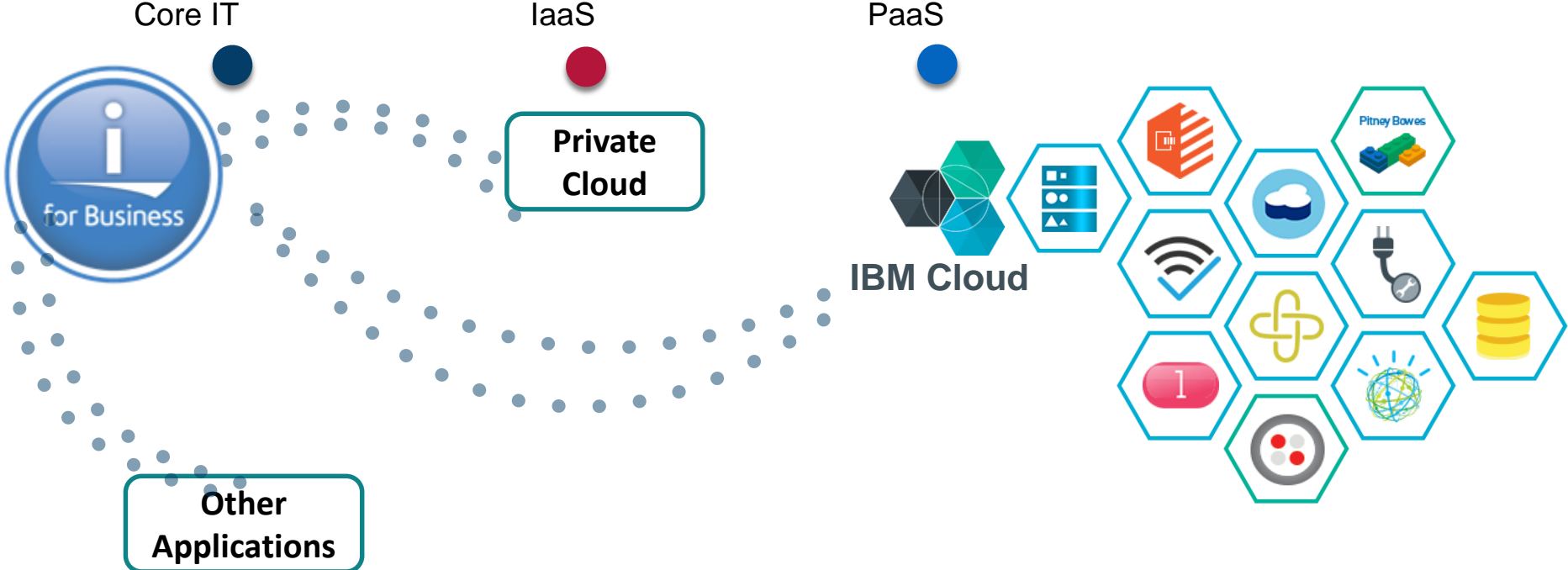
## Establish SQL temporary storage limits

Recent improvements enable limits on the amount of temporary storage a job may use to run SQL queries. This can prevent some system ...

Tim Clark

# Open Source on IBM i ...

## ...simplifies data & application integration



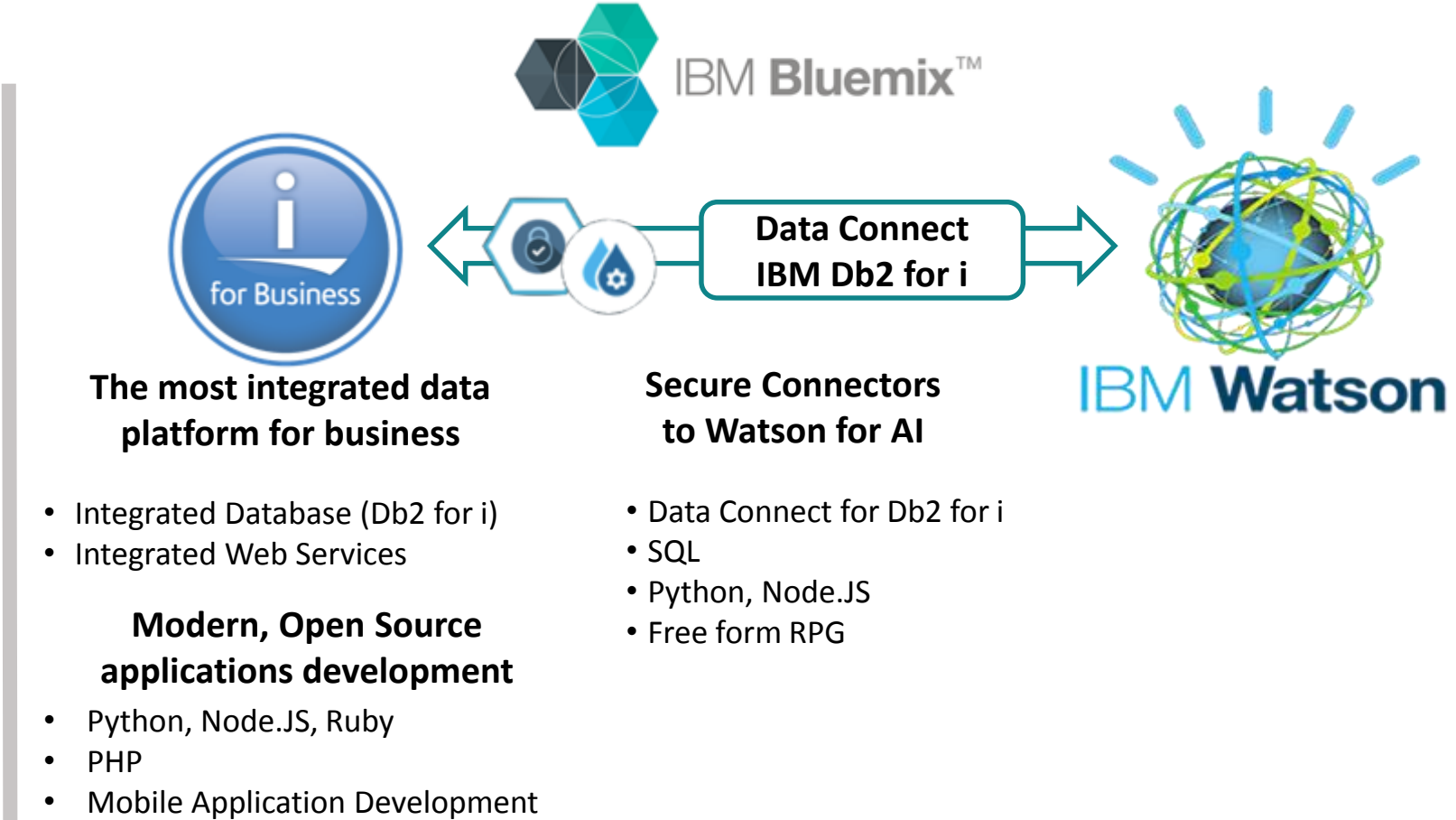
# Open Source on IBM i ... ... accelerates Business Opportunities



# Ready for AI: Connecting your business to the future



- 100+** Offers 100+ seating frames, fabrics and finishes
- Eye icon** Wanted to help customers visualize possible combinations
- Cube icon** Created a 3D configurator with open source software on IBM® i
- Lightbulb icon** Inspires customers to create their ideal designs
- 50%** 50% faster deliveries, as configurator accelerates manufacturing
- Gears icon** Will use IBM Watson® cognitive technology to help consumers find their preferred fabric



# IBM i Enabling solutions for your business

## IBM i Native Solutions



RPG

Cobol



PASE



## Open Source on IBM i



POWER8



POWER9

## Linux Solutions

Expanded Linux ecosystem of solutions for CAMSS



IBM MobileFirst





# ”i” for INTEGRATION & Open Source = Low TCO

- Native Database Server: DB2 on i (part of the OS Kernel)
- Integrated File System : Unix File System, NTFS, NFS, CIFS, etc.
- Software Integration: Security, DB, WebSphere Liberty, Dev tools, Backup tools etc.
- Native Language : RPG (IBM Toronto Lab), a Language for Business Apps + Java, COBOL
- Open Source integration: Apache, 5733-OPS (Node.js, Ruby, Python, gcc, Orion, GIT...)
- PHP & MySQL by Zend (**iAMP** Stack)



- ISV Support : ERP SAP, Banking/Finance Misys, Infor M3

# Open-source : 5733-OPS

- Option 1 – Node.JS V1
- Option 2 – Python 3.4.6
- Option 3 – GCC / Chroot
- Option 4 – Python 2.7.13
- Option 5 – Node.JS 4.x
- Option 6 – Git
- Option 7 – Tools
- Option 8 – Orion
- Option 9 – Cloud-init
- Option 10 - Node.JS 6
- Option 11 - Nginx



2014



chroot

2015



perl



7.3 & 7.2 TR4

2016

NGINX

2017

# Open-source : 5733-OPS ...



## ■ Node.JS

- provides a platform for server-side JavaScript applications running without browsers
- based on Google Chrome V8 Engine

## ■ Python



- popular high-level programming language
- multiple programming styles (object oriented, procedural)

## ■ GCC / chroot and Tools



- C language compiler used for compiling Open Source projects
- zip, unzip, bash, ...
- set of scripts that enable you to install RPMs from perzl.org



# ... Open-source : 5733-OPS



## ■ GIT

- Source Control Management (SCM) system
- Place under control sources from open-source (Node.js, Python...) and RPG



## ■ Orion

- Open-source Web development environment based
- Open source (Node.js, Python...) and RPG

A screenshot of the Orion IDE interface. The browser address bar shows 'i7adt06.torolab.ibm.com:8080/edit/edit.html#/file/test-Orion'. The interface includes a menu bar (File, Edit, View, Tools), a toolbar, and a sidebar with a file explorer showing 'Orion Content (i7adt06...)' and a folder 'rpg' containing 'PAYROLLFFG.RPGLE' and 't\_01\_scrap.rpgle'. The main editor displays the code for 'PAYROLLFFG.RPGLE' with the following content:

```
1 // *****  
2 // PROGRAM NAME - Payroll  
3 // DESCRIPTION - Time reporting master file maintenance using  
4 // externally described workstation processing.  
5  
6 Dc1-F MSTDSP WORKSTN;  
7 Dc1-F EMPMST Usage(*Update:*Delete:*Output) Keyed;  
8 Dc1-F PRJMST Usage(*Update:*Delete:*Output) Keyed;  
9 Dc1-F RSNMST Usage(*Update:*Delete:*Output) Keyed;  
10 //
```

## New yum / RPM package management support

- New way to install packages on i & get access to additional packages & versions
- Same process than on Unix & Linux ☺ ... with IBM Test & Support
- More information on the [Getting Started Wiki](#)
- Example: Get the latest Node.js version (ex: 8.10) on IBM i..

```
bash-4.4$ /QOpenSys/pkgs/bin/yum --version
3.4.3
bash-4.4# /QOpenSys/pkgs/bin/yum install nodejs
Setting up Install Process
Resolving Dependencies
--> Running transaction check
---> Package nodejs.ppc64 0:8.10.0-0 will be installed
bash-4.4# node -v
v6.9.1
bash-4.4# /QOpenSys/pkgs/bin/node -v
v8.10.0
```

# Develop in IBM Cloud / IBM Cloud Private, Deploy & Run on Power Systems.



<p><b>.java</b> <b>Liberty for Java™</b> Develop, deploy, and scale Java web apps with ease. IBM WebSphere Liberty Profile is a highly composed...</p> <p>Lite IBM</p> <p>  </p>	<p><b>.js</b> <b>SDK for Node.js™</b> Develop, deploy, and scale server-side JavaScript® apps with ease. The IBM SDK for Node.js™ provides...</p> <p>Lite IBM</p> <p>  </p>	<p><b>.net</b> <b>ASP.NET Core</b> Develop, deploy, and scale ASP.NET Core web apps with ease.</p> <p>Lite IBM</p> <p></p>
<p><b>.swift</b> <b>Runtime for Swift</b> A Kitura based server application that you can use as a starting point to get your own Kitura application...</p> <p>Lite IBM</p> <p></p>	<p><b>.xsp</b> <b>XPages</b> Develop, deploy and scale IBM XPages applications with ease. The IBM XPages runtime provides you with...</p> <p>Lite IBM</p> <p>  </p>	<p><b>.go</b> <b>Go</b> Develop, deploy, and scale Go web apps with ease.</p> <p>Lite Community</p> <p></p>
<p><b>.php</b> <b>PHP</b> Develop, deploy, and scale PHP web apps with ease.</p> <p>Lite Community</p> <p>  </p>	<p><b>.py</b> <b>Python</b> Develop, deploy, and scale Python web apps with ease.</p> <p>Lite Community</p> <p>  </p>	<p><b>.rb</b> <b>Ruby</b> Develop, deploy, and scale Ruby web apps with ease.</p> <p>Lite Community</p> <p>  </p>
<p><b>tomcat</b> <b>Tomcat</b> Develop, deploy, and scale Tomcat web apps with ease.</p> <p>Lite Community</p> <p>  </p>		

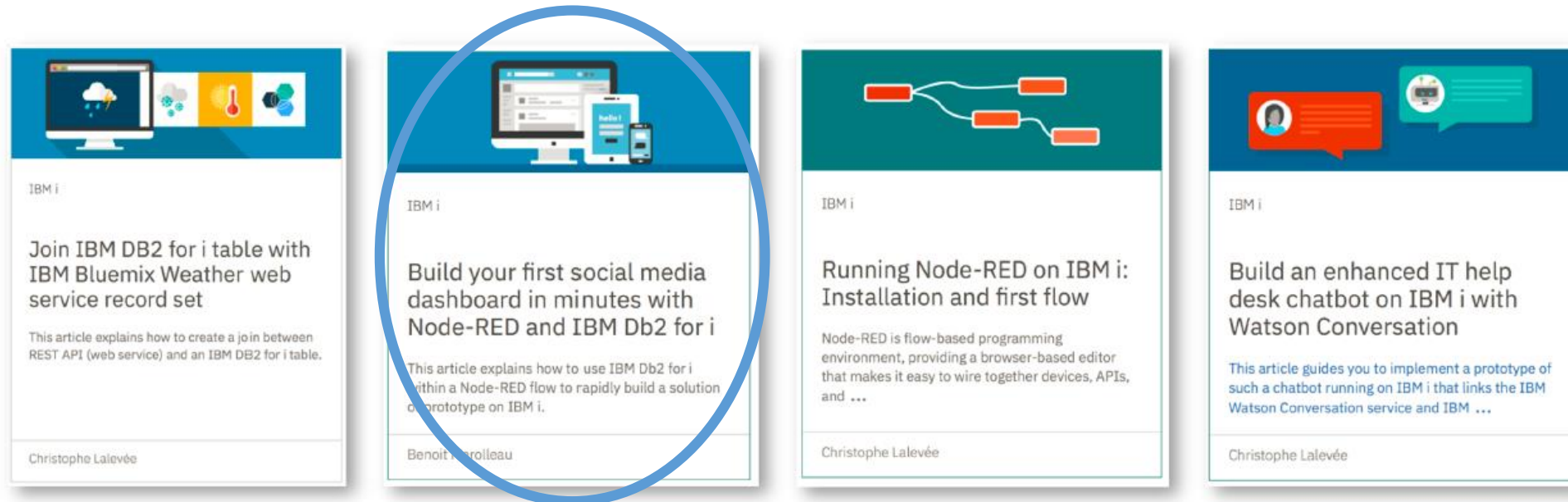


- ❑ IBM Cloud Runtimes (Cloud Foundry Build packs) are all supported on Power Systems!
- ❑ Consume IBM Cloud Services (Watson,...) from IBM i easily using REST calls.

# What to do next?

- ❑ New to Open Source on IBM i & 5733OPS? The reference wiki is [here](#)
- ❑ Become a Watson master with the “[IBM Cloud & Watson Day Labs](#)” , Self-paced labs.
  - ❑ [Lab 8](#) - Twitter Dashboard with Node-RED & Watson
- ❑ IBM DeveloperWorks & IBM i

<https://www.ibm.com/developerworks/learn/ibmi/index.html>



The background of the slide is a complex network diagram. It consists of numerous small, grey circular nodes scattered across the frame. These nodes are interconnected by a dense web of thin, light-grey lines, creating a mesh-like structure that resembles a neural network or a data graph. The overall aesthetic is clean and technical.

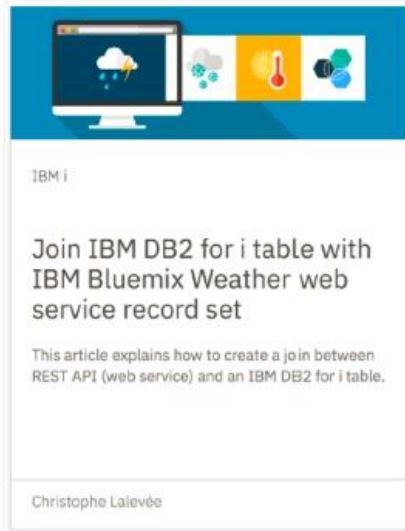
# Demonstration



# Demonstration - Tutorial

- <https://www.ibm.com/developerworks/ibmi/library/i-social-media-dashboard/>

<https://www.ibm.com/developerworks/learn/ibmi/index.html>

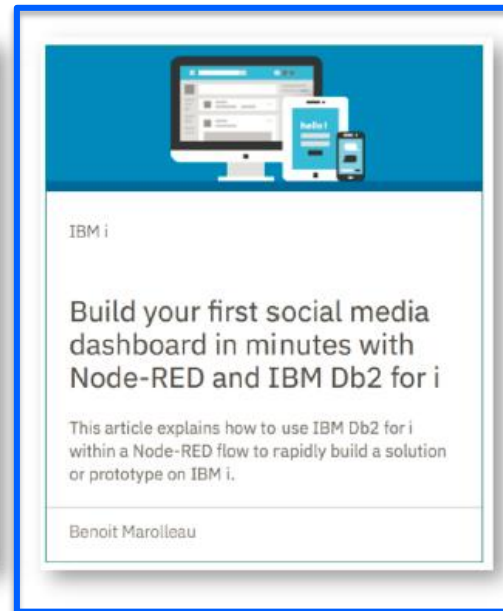


IBM i

### Join IBM DB2 for i table with IBM Bluemix Weather web service record set

This article explains how to create a join between REST API (web service) and an IBM DB2 for i table.

Christophe Lalevée



IBM i

### Build your first social media dashboard in minutes with Node-RED and IBM Db2 for i

This article explains how to use IBM Db2 for i within a Node-RED flow to rapidly build a solution or prototype on IBM i.

Benoit Marolleau

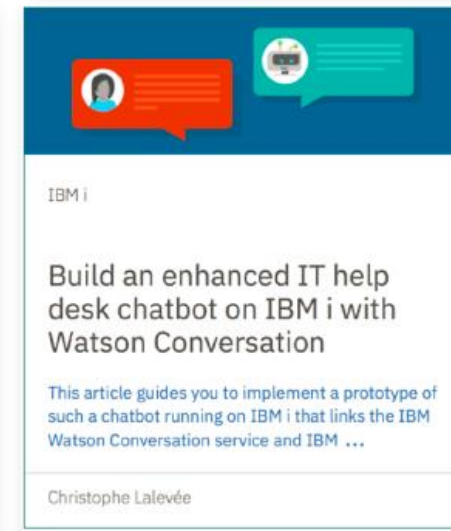


IBM i

### Running Node-RED on IBM i: Installation and first flow

Node-RED is flow-based programming environment, providing a browser-based editor that makes it easy to wire together devices, APIs, and ...

Christophe Lalevée



IBM i

### Build an enhanced IT help desk chatbot on IBM i with Watson Conversation

This article guides you to implement a prototype of such a chatbot running on IBM i that links the IBM Watson Conversation service and IBM ...

Christophe Lalevée