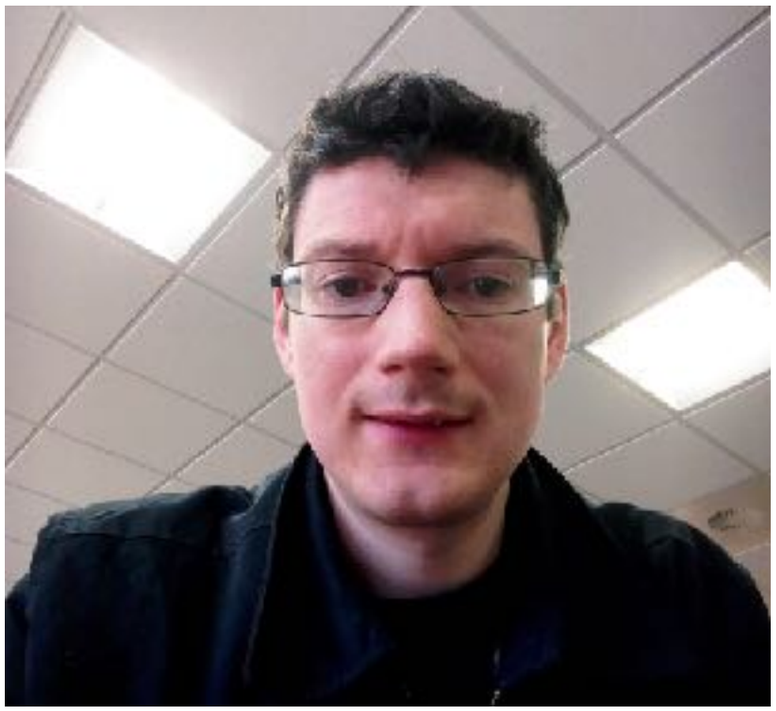
Why is IBM investing in Node.js and Swift?

Mike Tunnicliffe

Swift@IBM



Gibson Fahnestock

Node@IBM

Before we start

Setting the scene

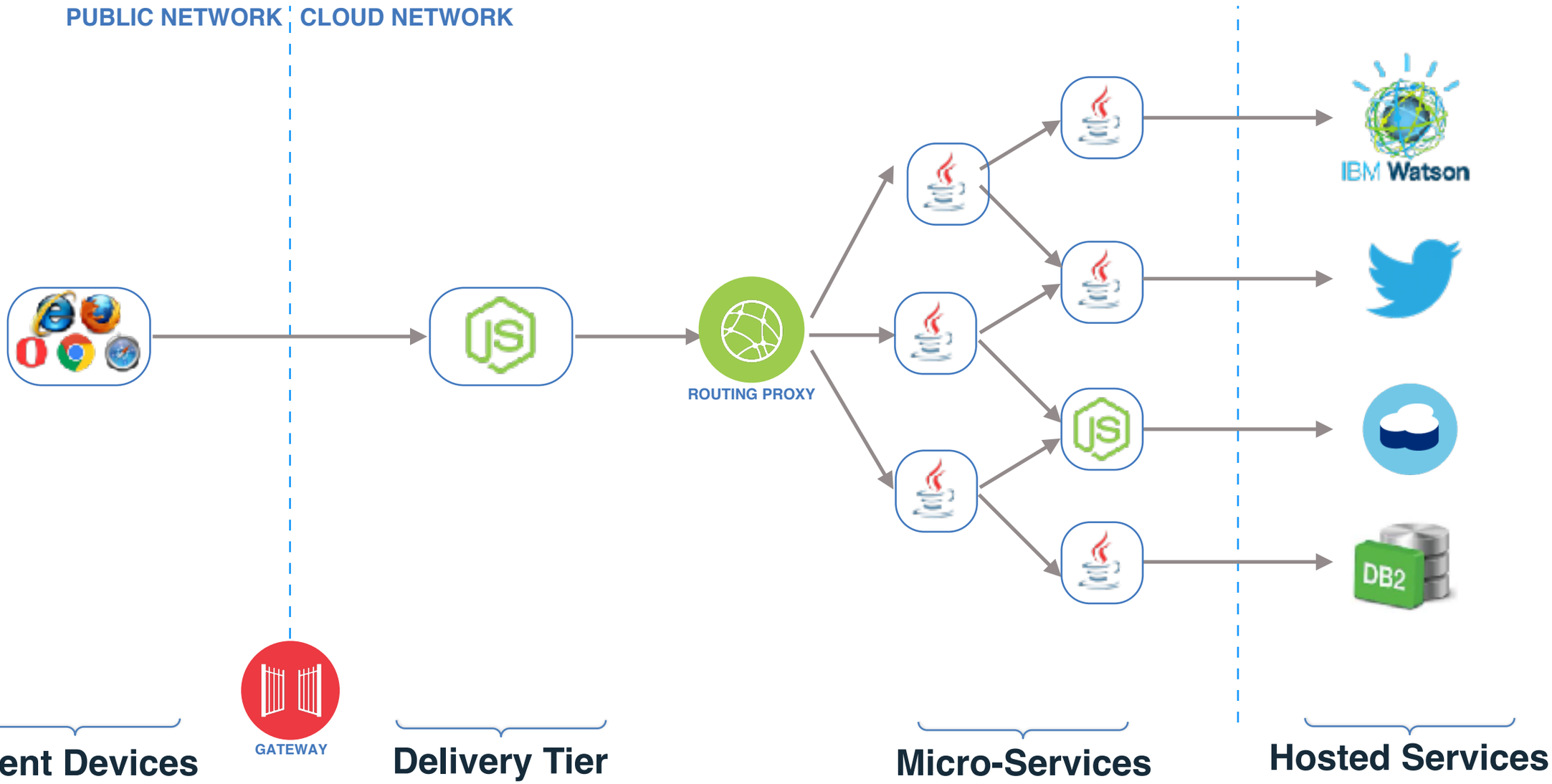
Digital transformations

speed of feature delivery

service availability

operational efficiency

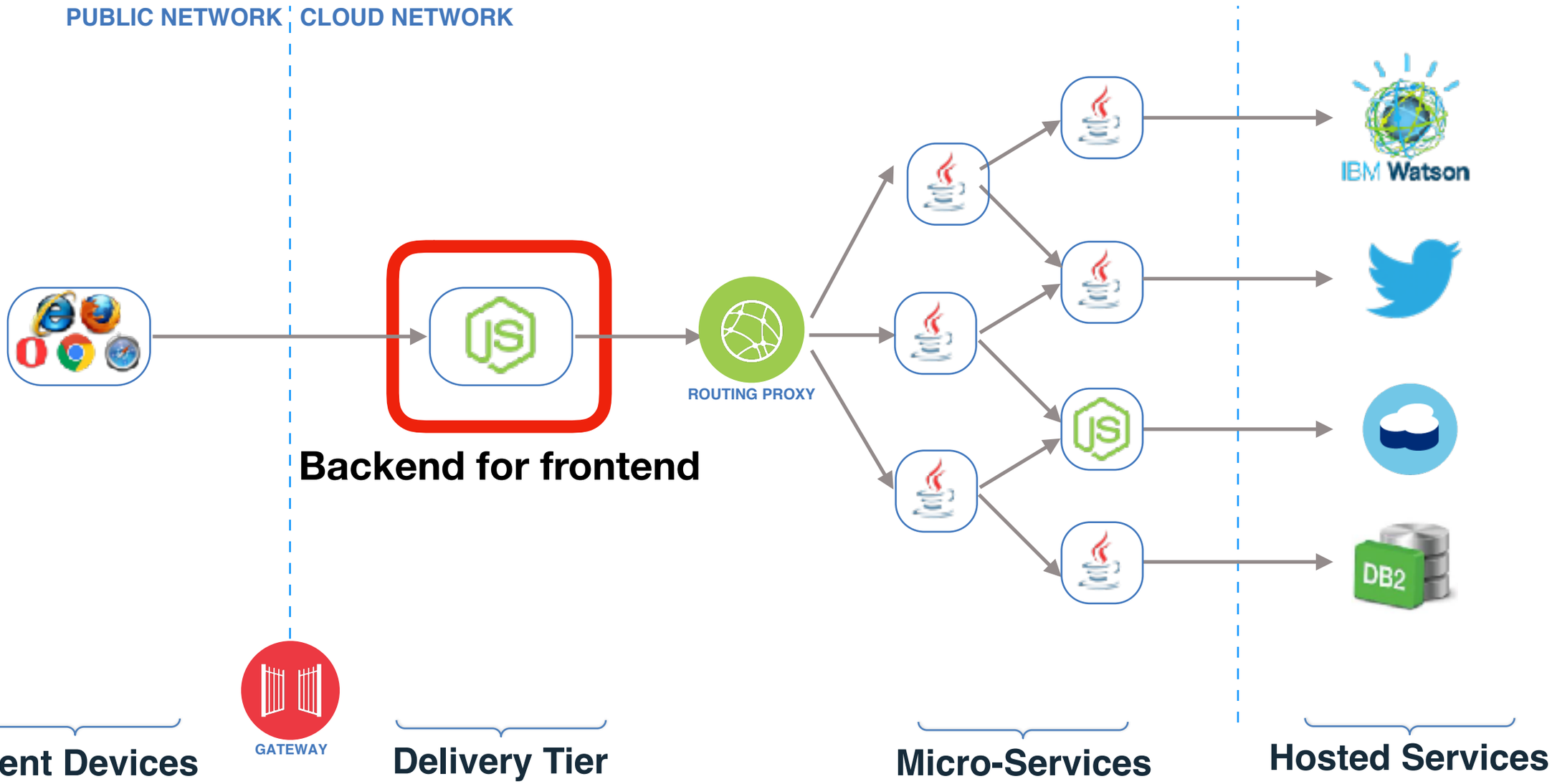
Microservice Architecture


PUBLIC NETWORK
CLOUD NETWORK
ROUTING PROXY
IBM Watson
DB2
GATEWAY
Client Devices
Delivery Tier
Micro-Services
Hosted Services

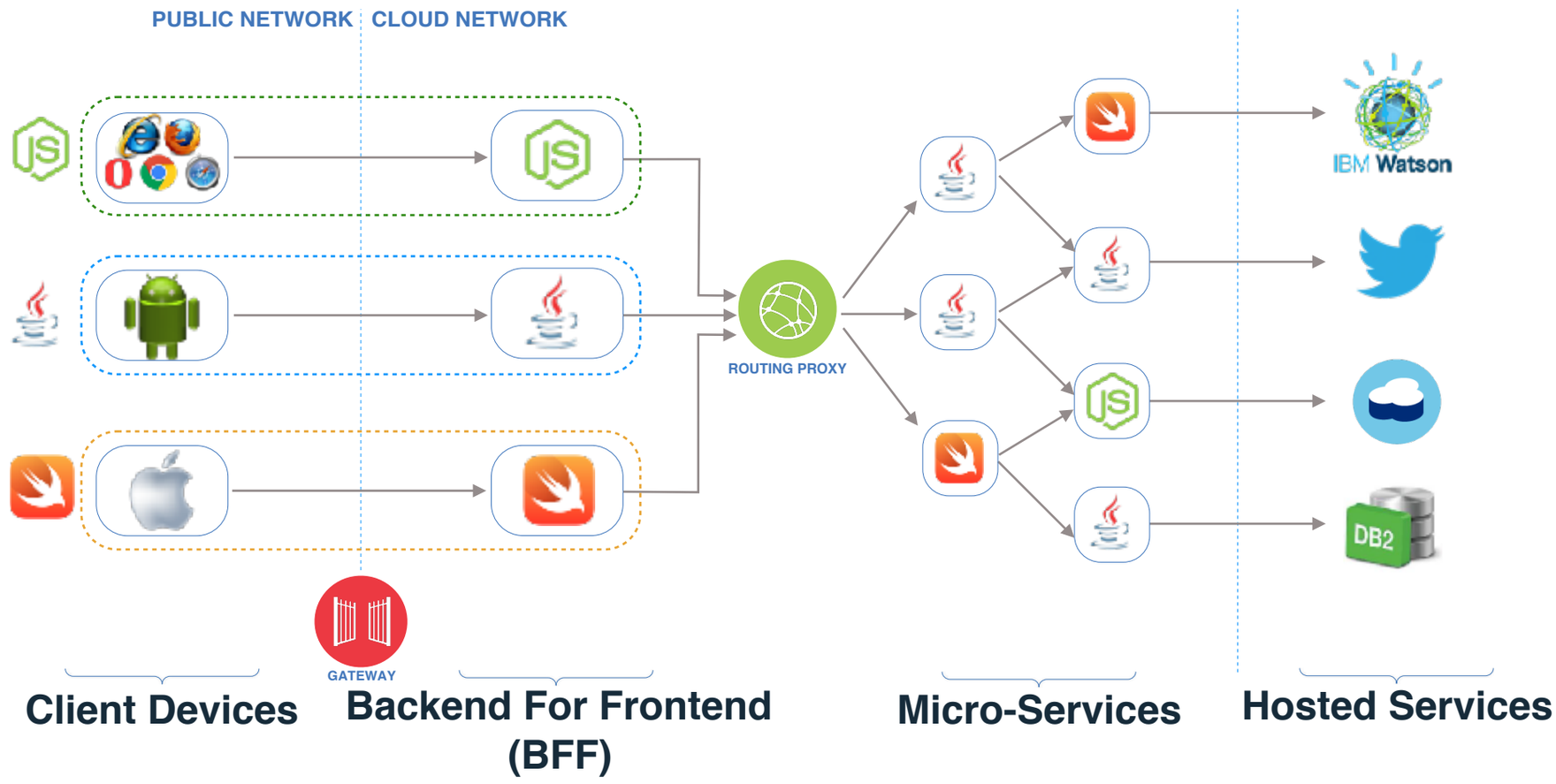
Small, self-contained, individually deployable

Tailoring the user experience to different device types

Insulate the backend application


PUBLIC NETWORK
CLOUD NETWORK
IBM Watson
ROUTING PROXY
Backend for frontend
DB2
GATEWAY
Client Devices
Delivery Tier
Micro-Services
Hosted Services

Multiple front-ends


PUBLIC NETWORK
CLOUD NETWORK
ROUTING PROXY
IBM Watson
DB2
GATEWAY
Client Devices
Backend For Frontend (BFF)
Micro-Services
Hosted Services

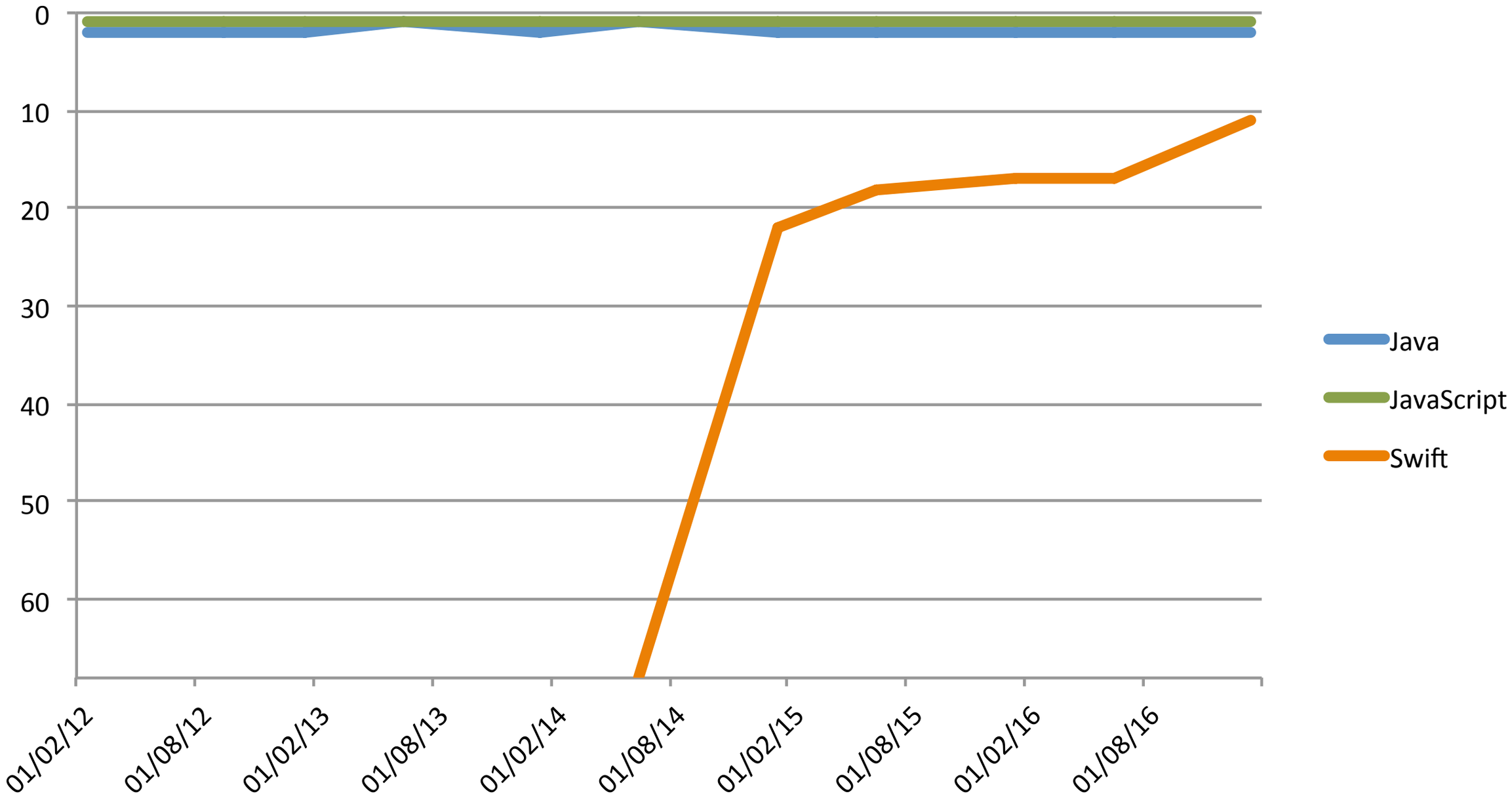
Why you should be adopting Node.js and Swift

Why Java, Node.js and Swift are all part of the new reference architectures

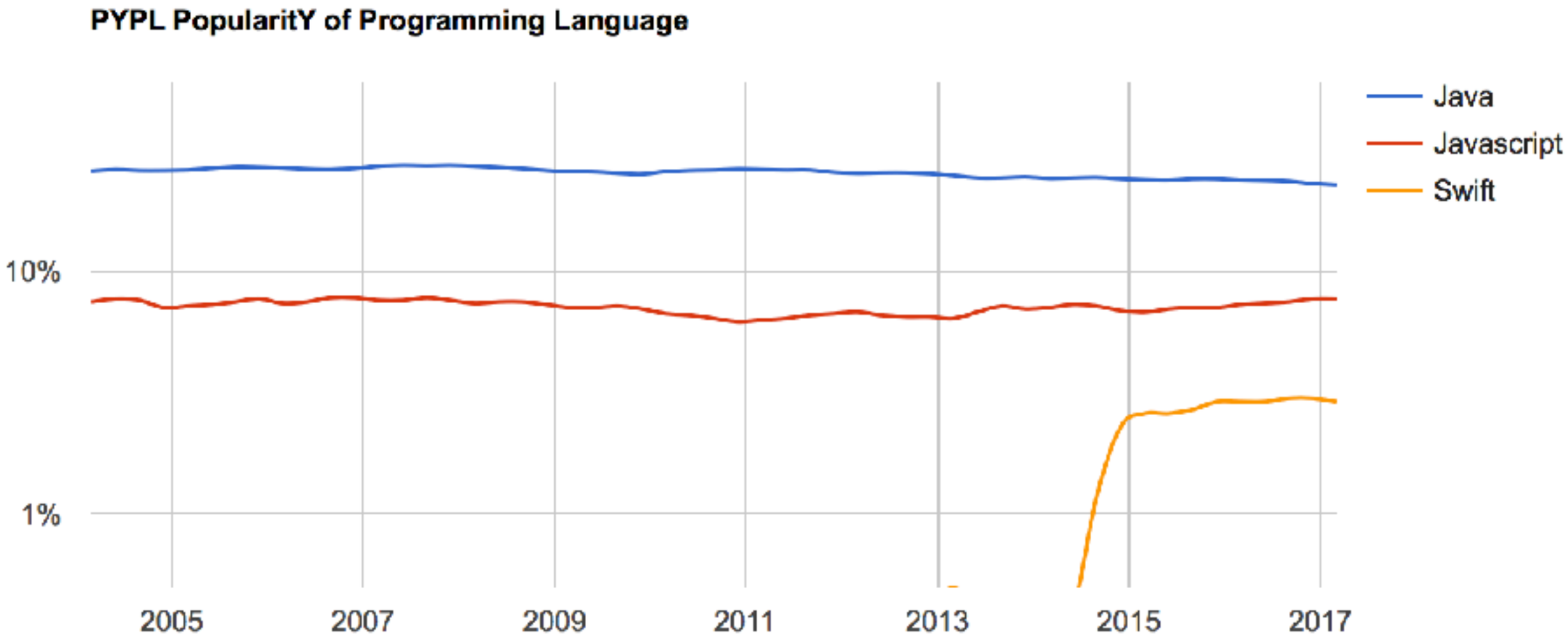
https://www.ibm.com/devops/method/category/architectures/

How the languages compare

Popularity



Redmonk Programming Languages Rankings
http://redmonk.com/sogrady/category/programming-languages/



PopularitY of Programming Language (PYPL)
http://pypl.github.io/PYPL.html

Characteristics

Runtime Language

Type Safe

Bytecode and JIT Compiled

Garbage Collected

Concurrent Threaded

All Platforms

Scripting Language

Dynamically Typed

JIT Compiled

Garbage Collected

Single Thread

All Platforms

Modern Native Language

Type Safe, with Inference

Pre-Compiled

Reference Counted

Concurrent Work Pool

Apple Platforms and Linux

Strengths

Processing Performance

Safety

Ecosystem Maturity

IO Performance

Developer Productivity

Ecosystem Maturity

Memory Footprint

Safety

Processing Performance

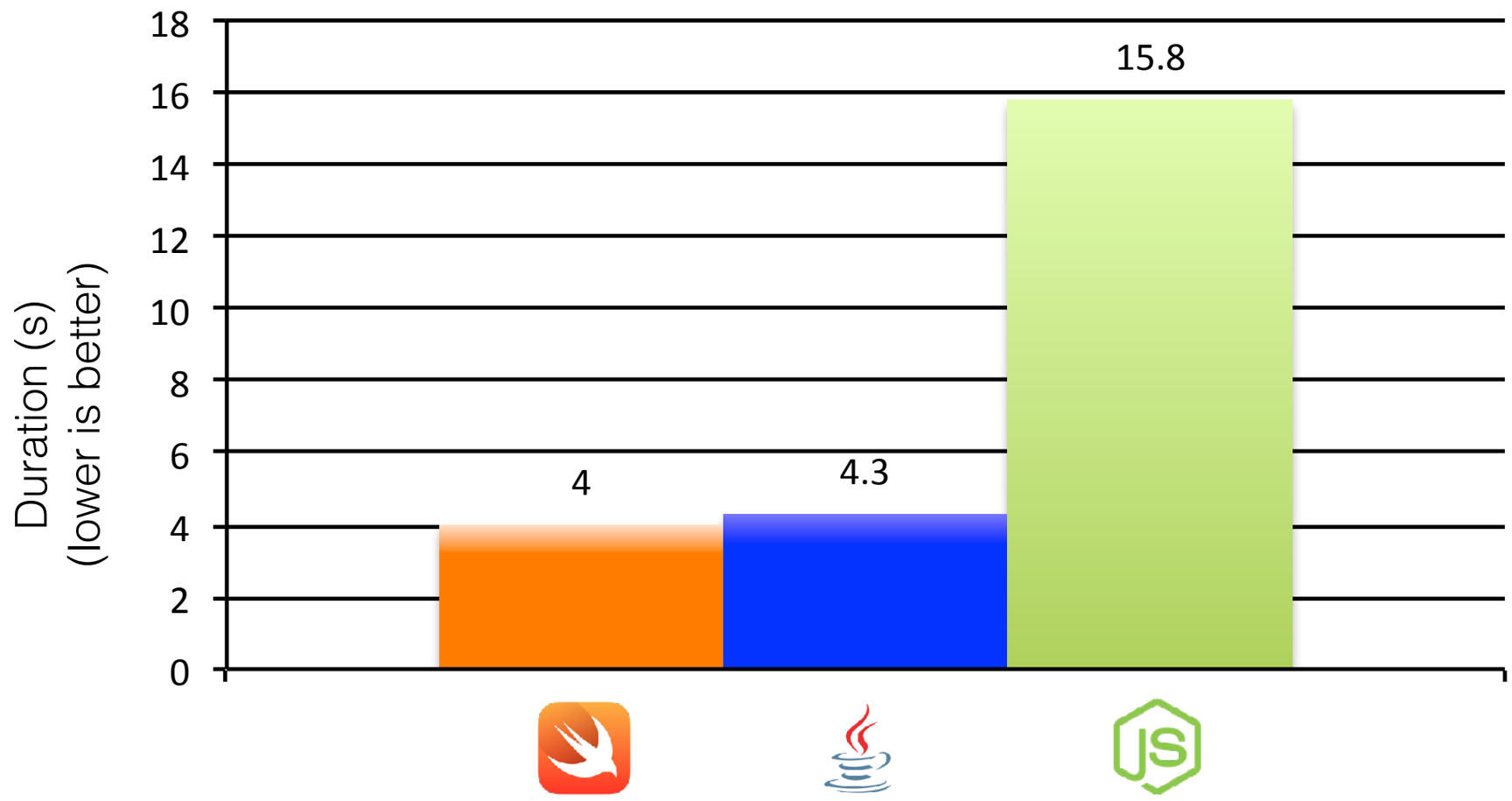
Developer Productivity

Business Logic
Performance Critical
Batch Processing

Delivery Tier
Enterprise Modernisation

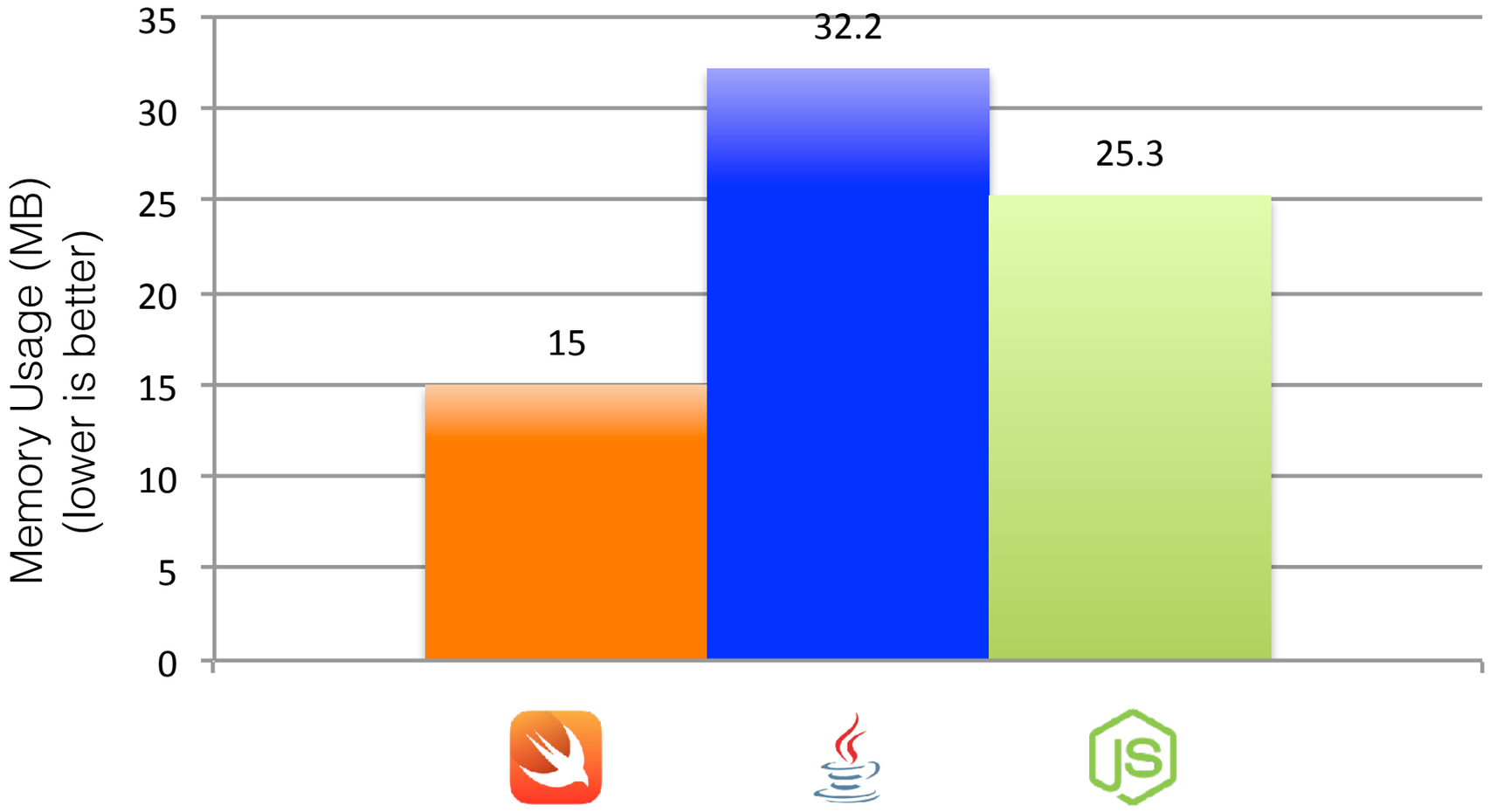
Delivery Tier
Business Logic
Performance Critical

Processing Performance



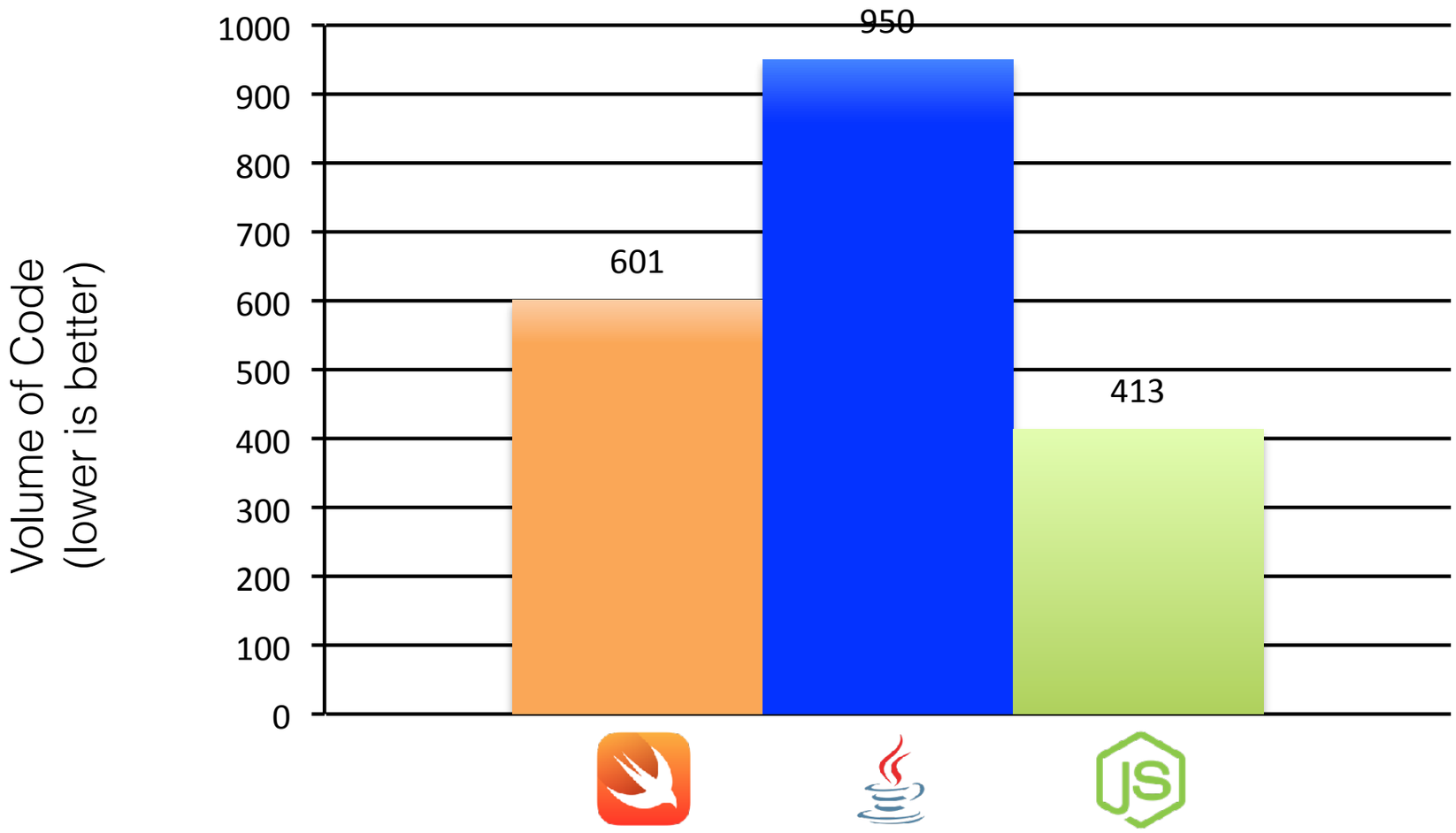
http://benchmarksgame.alioth.debian.org/u64q/performance.php?test=spectralnorm

Memory Footprint



http://benchmarksgame.alioth.debian.org/u64q/performance.php?test=spectralnorm

Developer Productivity



http://benchmarksgame.alioth.debian.org/u64q/performance.php?test=spectralnorm

Why and how IBM is contributing to Node.js and Swift

Swift: Why

- Primary language for Apple platforms
- Good language for backend

Swift: Goals

- Seek to **improve** coverage and quality of implementation of **Swift on Linux**
- Want Swift to become a **first-class** language for implementing **server-side applications**

Swift: How

- Improving Linux support
  - Dispatch
  - Swift Foundation class libraries
    - Implementing many missing APIs
    - Performance, correctness and compatibility work

Swift: How

- Standardization
  - Server Working Group
- Frameworks and libraries
  - Kitura web framework
  - SwiftKuery SQL abstraction library
  - Other libraries for sockets, databases, authentication and more

Swift: How

- Services
  - Swift Sandbox (https://swift.sandbox.bluemix.net)
  - Swift Package Catalog (https://packagecatalog.com/)
- IBM Cloud support
  - Generate cloud-ready starter applications (https://console.bluemix.net/developer/appservice/dashboard)
  - Swift build pack
  - Swift docker images

Why and how IBM is contributing to Node.js and Swift

It’s good to talk

gib@uk.ibm.com
mike.tunnicliffe@uk.ibm.com

Questions?

Please note

IBM’s statements regarding its plans, directions, and intent are subject to change or withdrawal without notice at IBM’s
sole discretion.

Information regarding potential future products is intended to outline our general product direction and it should not be relied on in making a purchasing decision.

The information mentioned regarding potential future products is not a commitment, promise, or legal obligation to deliver
any material, code or functionality. Information about potential future products may not be incorporated into any contract.

The development, release, and timing of any future features
or functionality described for our products remains at our sole discretion.

Performance is based on measurements and projections using standard IBM benchmarks in a
controlled environment. The actual throughput or performance that any user will experience will vary depending upon many factors, including considerations such as the amount of multiprogramming in the user’s job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve results similar to those stated here.

Notices and disclaimers

U.S. Government Users Restricted Rights — use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM.

Information in these presentations (including information relating to products that have not yet been announced by IBM) has been reviewed for accuracy as of the date of initial publication and could include unintentional technical or typographical errors. IBM shall have no responsibility to update this information. **This document is distributed "as is" without any warranty, either express or implied. In no event shall IBM be liable for any damage arising from the use of this information, including but not limited to, loss of data, business interruption, loss of profit or loss of opportunity.** IBM products and services are warranted according to the terms and conditions of the agreements under which they are provided.

IBM products are manufactured from new parts or new and used parts. In some cases, a product may not be new and may have been previously installed. Regardless, our warranty terms apply."

Any statements regarding IBM's future direction, intent or product plans are subject to change or withdrawal without notice.

Performance data contained herein was generally obtained in a controlled, isolated environments. Customer examples are presented as illustrations of how those customers have used IBM products and the results they may have achieved. Actual performance, cost, savings or other results in other operating environments may vary.

References in this document to IBM products, programs, or services does not imply that IBM intends to make such products, programs or services available in all countries in which IBM operates or does business.

Workshops, sessions and associated materials may have been prepared by independent session speakers, and do not necessarily reflect the
views of IBM. All materials and discussions are provided for informational purposes only, and are neither intended to, nor shall constitute legal or other guidance or advice to any individual participant or their specific situation.

It is the customer's responsibility to insure its own compliance with legal requirements and to obtain advice of competent legal counsel as to the identification and interpretation of any relevant laws and regulatory requirements that may affect the customer's business and any actions the customer may need to take to comply with such laws. IBM does not provide legal advice or represent or warrant that its services or products will ensure that the customer is in compliance with any law.

Notices and disclaimers continued

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products in connection with this publication and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products. IBM does not warrant the quality of any third-party products, or the ability of any such third-party products to interoperate with IBM's products. **IBM expressly disclaims all warranties, expressed or implied, including but not limited to, the implied warranties of merchantability and fitness for a particular**, **purpose.**

The provision of the information contained herein is not intended to, and does not, grant any right or license under any IBM patents, copyrights, trademarks or other intellectual property right.