



# Getting Groovier with **VERT.X**

Hitesh Bhatia

IntelliGrape

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```
// Feed your brain  
gr8.technologies.each{  
  yourBrain << it  
}
```

# About Me

Hitesh Bhatia

Senior Software Engineer

Intelligrape Software

# AGENDA

**Why Vert.x**

**What is Vert.x**

**Key advantages of Vert.x**

**Key Concepts**

**How it works**

**Internals**

**Demos**

**Summary**



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# Why Vert.x ?

C10K

Why is it becoming prominent ?



**Mobile**

**Tablets**

**Laptops**

**Long lived connections**



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# What is Vert.x ?

Asynchronous / Event based programming model

Polyglot

Scalable

And Simple application framework.



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## Advantages of **Vert.x**

**01**

Polyglot Nature

**02**

Runs on **JVM**

**03**

Easy **Scalability**

**04**

Hybrid Model



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## Key Concepts Vert.x

Verticle

Event Bus

Event loop

Worker thread

Module



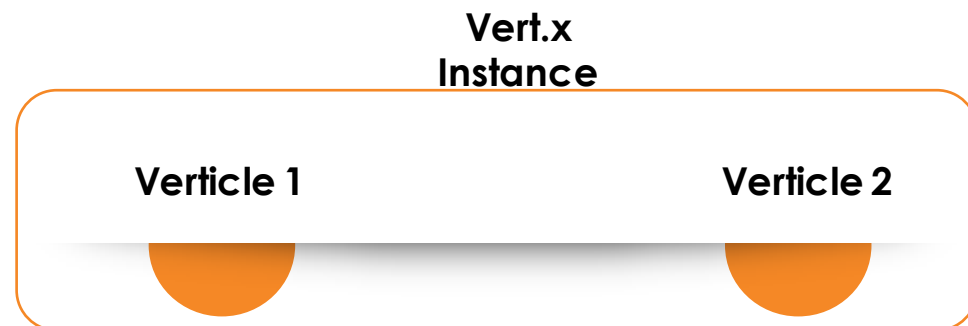
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# Verticle

Unit of deployment

Could be a Java class with a main method or a groovy script

Verticle runs inside a Vertx instance, which runs inside its own JVM instance.



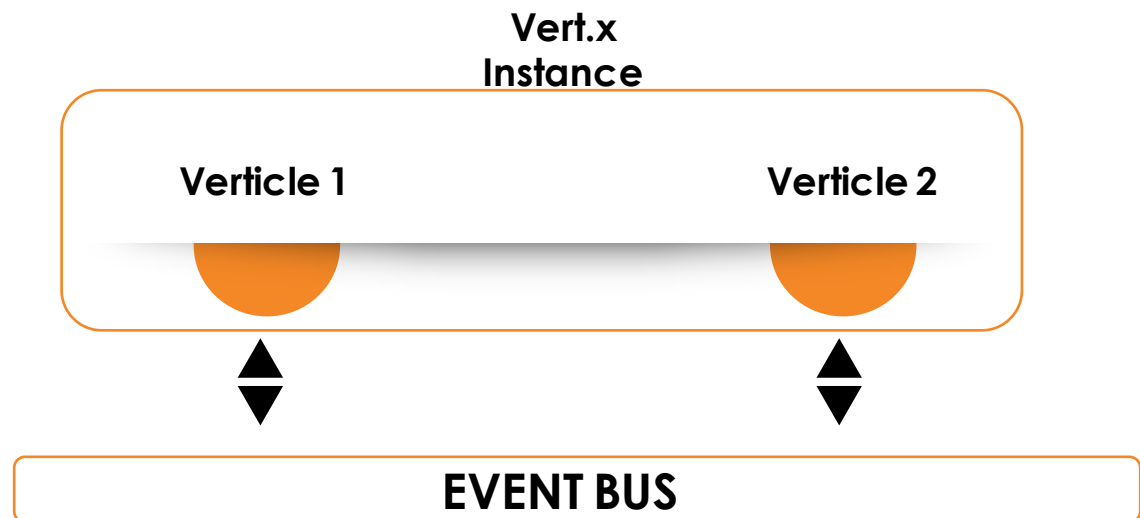


# Event Bus

Publish/Subscribe pattern or P2P Messaging

Communication channel for the verticles.

Involves registering, unregistering of handlers, and sending, publishing of messages.

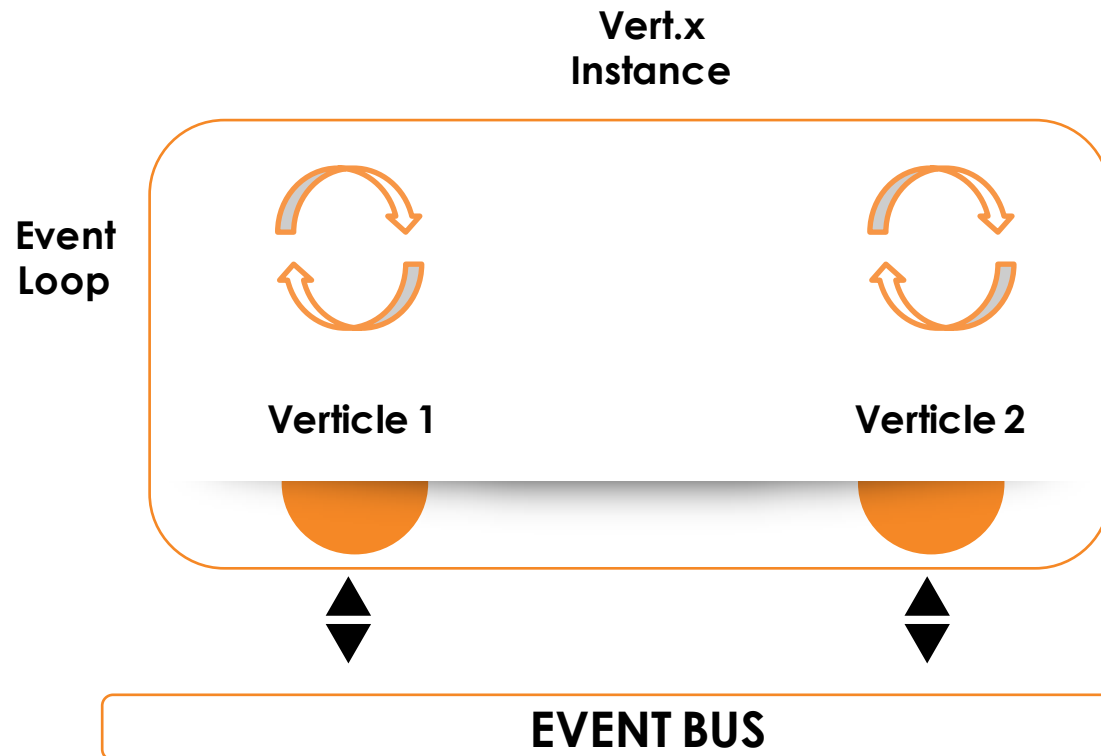


Executes handlers synchronously on a single thread

Managed by `vert.x` instance

Multiple events loops inside a `vert.x` instance

# Event Loop

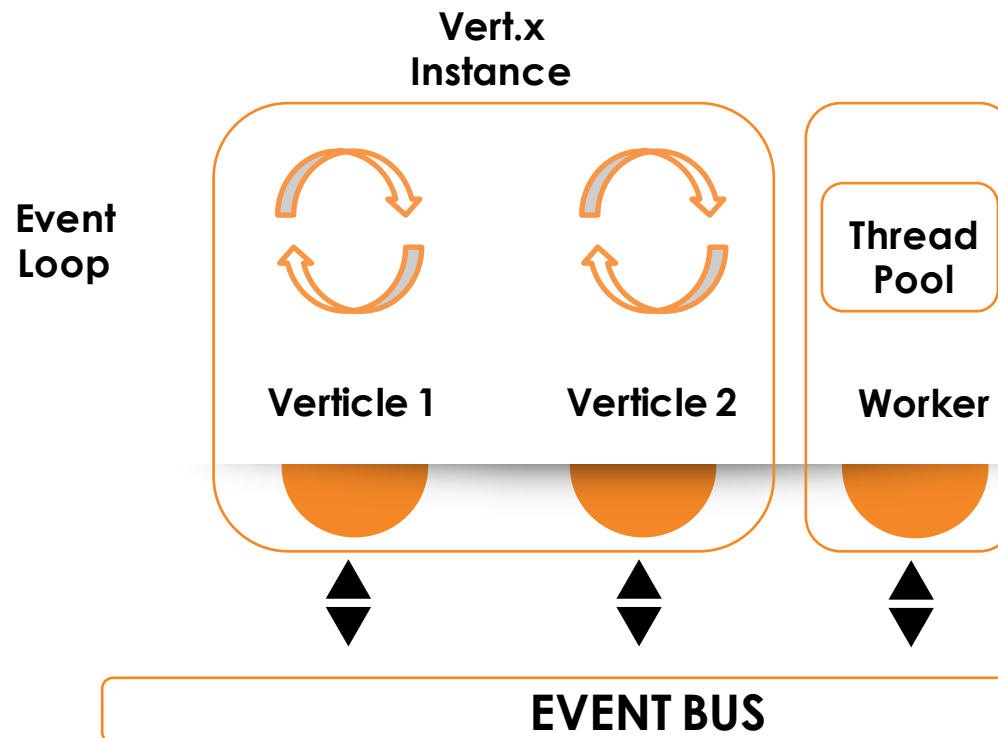


# Worker Verticle

Uses background pool of threads

Used for tasks that require blocking

Or long running tasks line



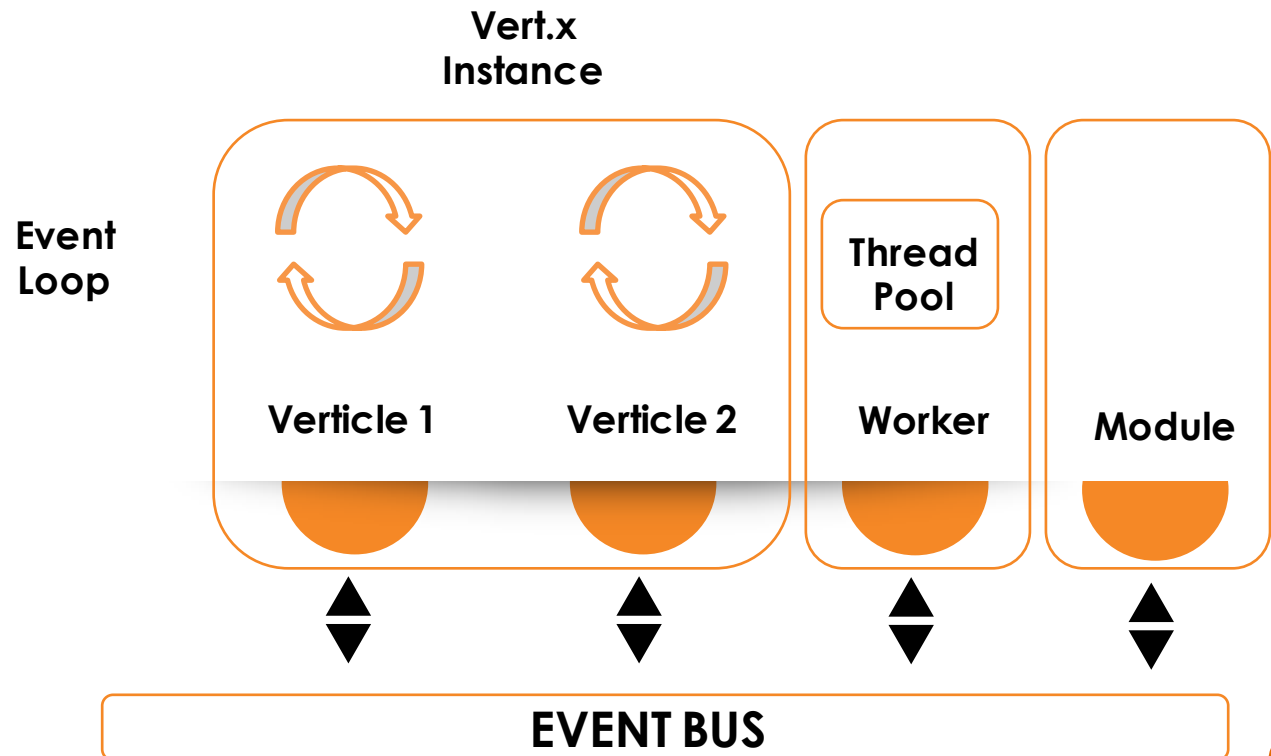
Reusable

Can be implemented in any language

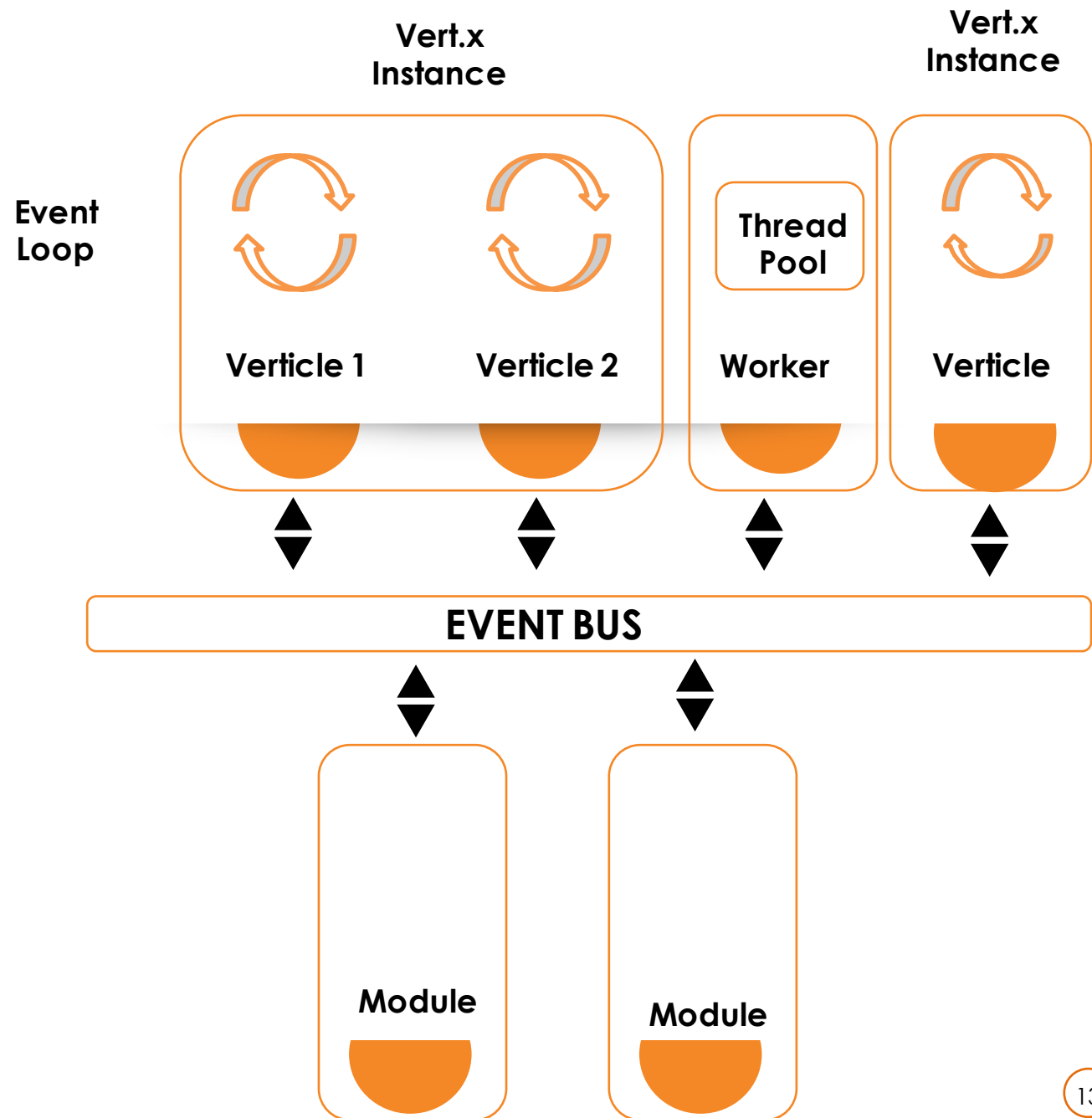
Communicates via Eventbus only

Module can also be of type worker

# Modules



# Big Picture





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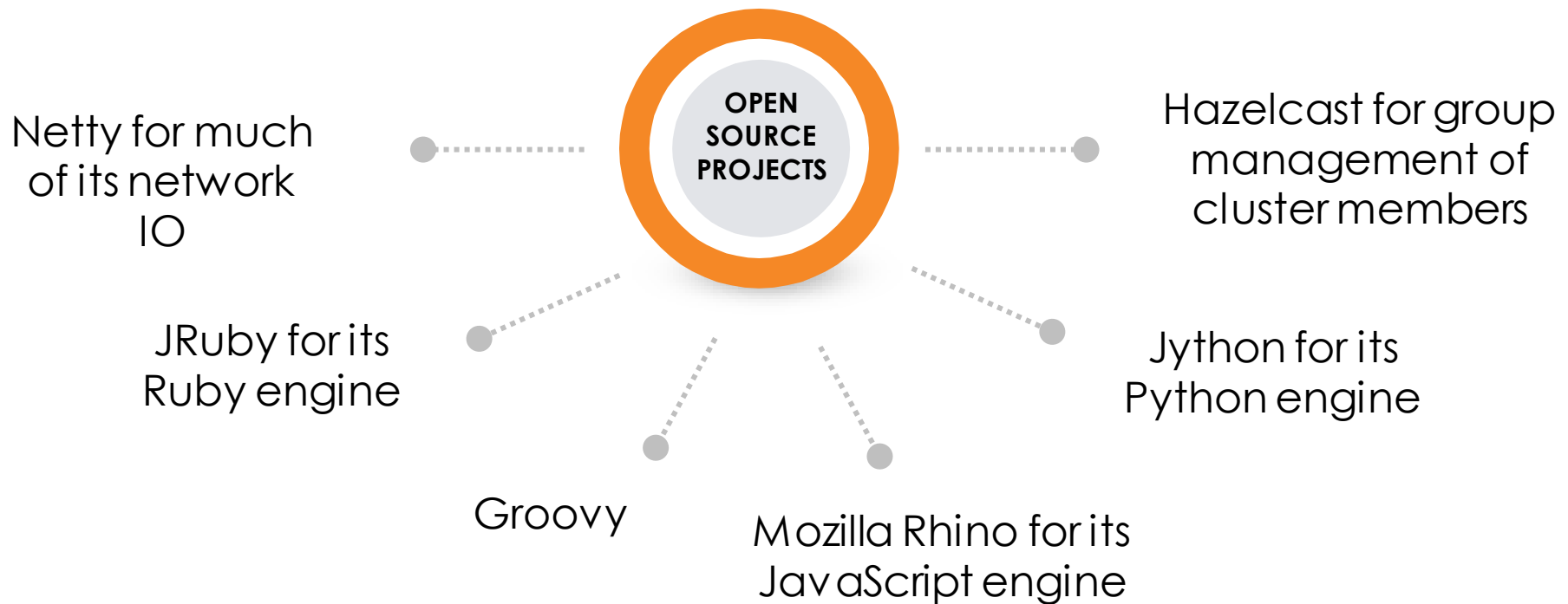
# **Vert.X**

## **DEMO**

### **Verticle**



## Vert.x uses the following open source projects





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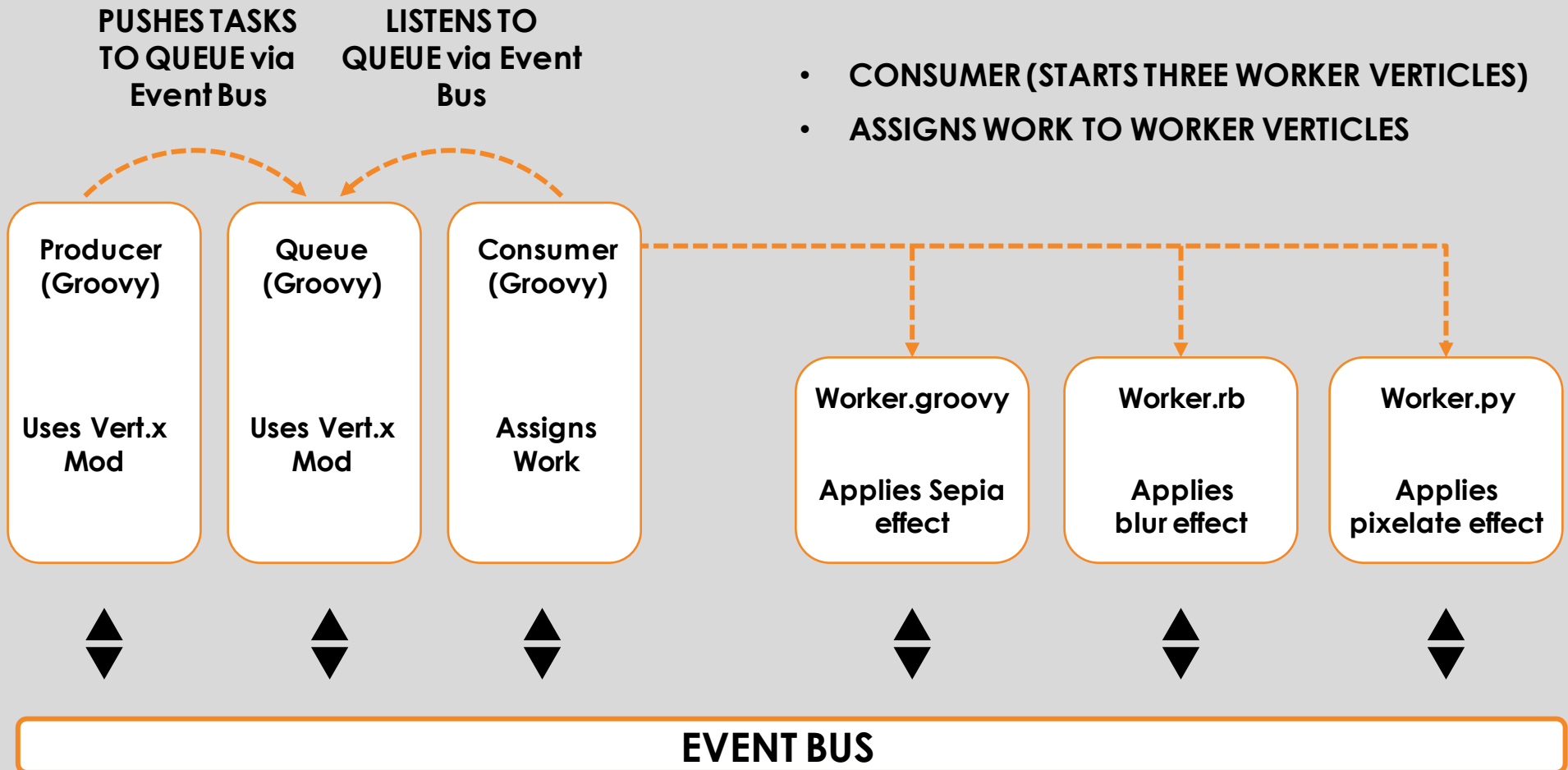
# **Vert.X DEMO APPLICATION**



## **Image Transformations**



# Demo Application Architecture



# Demo Application Architecture

**PRODUCER**

Producer  
(Groovy)

Written in groovy

Pushes tasks to queue

Runs as a part of a cluster

Uses Vert.x  
Mod



**EVENT BUS**

# Demo Application Architecture

QUEUE

Queue  
(Groovy)

Uses Vert.x  
Mod

Written in groovy

Uses vertx mod “vertx-work-queue”

Uses MongoDB

Sends tasks registered verticles (Consumer)



EVENT BUS

# Demo Application Architecture

**CONSUMER**

Consumer  
(Groovy)

Assigns  
Work

Written in groovy

Starts three workers verticles

Register with queue

Assigns work to workers verticle



EVENT BUS

# Demo Application Architecture

## WORKERS

Three workers, all implemented in different languages – Groovy, Ruby and Python

Apply specific transformation on images

Don't interact within themselves

Worker. groovy

Applies Sepia  
effect

Worker. rb

Applies  
blur effect

Worker. py

Applies  
pixelate effect



EVENT BUS



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**Vert.x**

# Demo Application Architecture

**EVENT BUS**

Used for communication

**EVENT BUS**



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## Summary

Runs on **JVM**

Event bus acts as main communication channel

Very suitable for real-time web-applications

Hybrid threaded model

Allows polyglot programming

Easy scalability



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## SOMETHINGS TO LOOK FORWARD TO...

### Vert.x 2.0

- Uses Netty 4.0
- Gradle integration for creating builds
- Language support available as modules
- Better IDE support
- Application that help in creation of modules



### Yoke Framework

### Scala Support



**THANK YOU**

## **PROJECT INFO**

-  Github : <https://github.com/vert-x/vert.x>
-  Website : <http://vertx.io/>
-  Google Group : [vert.x](#)

## **SPEAKER INFO**

-  <http://www.intelligrape.com/blog/author/hitesh/>
-  d1\_ricky