
DevNation
Kafka et Knative au service des Bricoleurs du Dimanche !
Red Hat
Developer
Alain Pham & Laurent Broudoux
June 22th 2021

Alain Pham

- Specialist Solution Architect at Red Hat
- Passionate about
  - Indie Filmmaking with Cheap Filmmaking Gear

- @alainphm
- #Camel, #API, #AsyncAPI

- **Bricoleur du Dimanche!**

Laurent Broudoux

- Solution Architect at Red Hat at daytime
- Open Source contributor at nighttime
  - Check microcks.io ;-)
- Dad x 5 all the time!

- @lbroudoux
- Loves everything distributed!
- #Kubernetes, #Camel, #API, #OpenAPISpec, #AsyncAPI

- **Bricoleur du Dimanche!**


File Render Window Help
2-Model
Spirited_away
Blender Render
v2.77 | Verts:814 | Faces:652 | Tris:1,304 | Objects:1/83 | Lamps:0/1 | Mem:234.33M | Cube.022
User Persp
base_eclair.004
base_eclair.008
base_eclair.013
eclair_lanterne.007
eclair_lanterne.006
eclair_lanterne.005
eclair_lanterne.004
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start
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Refresh Sequencer
Use Backdrop
Start: 350
End: 1814
1672
AV-sync
Catmull-Rom
Full Sample
Size: 1.000 px
Sampled Motion Blur
Shading
Textures
Ray Tracing
Shadows
Alpha: Sky
Subsurface Scattering

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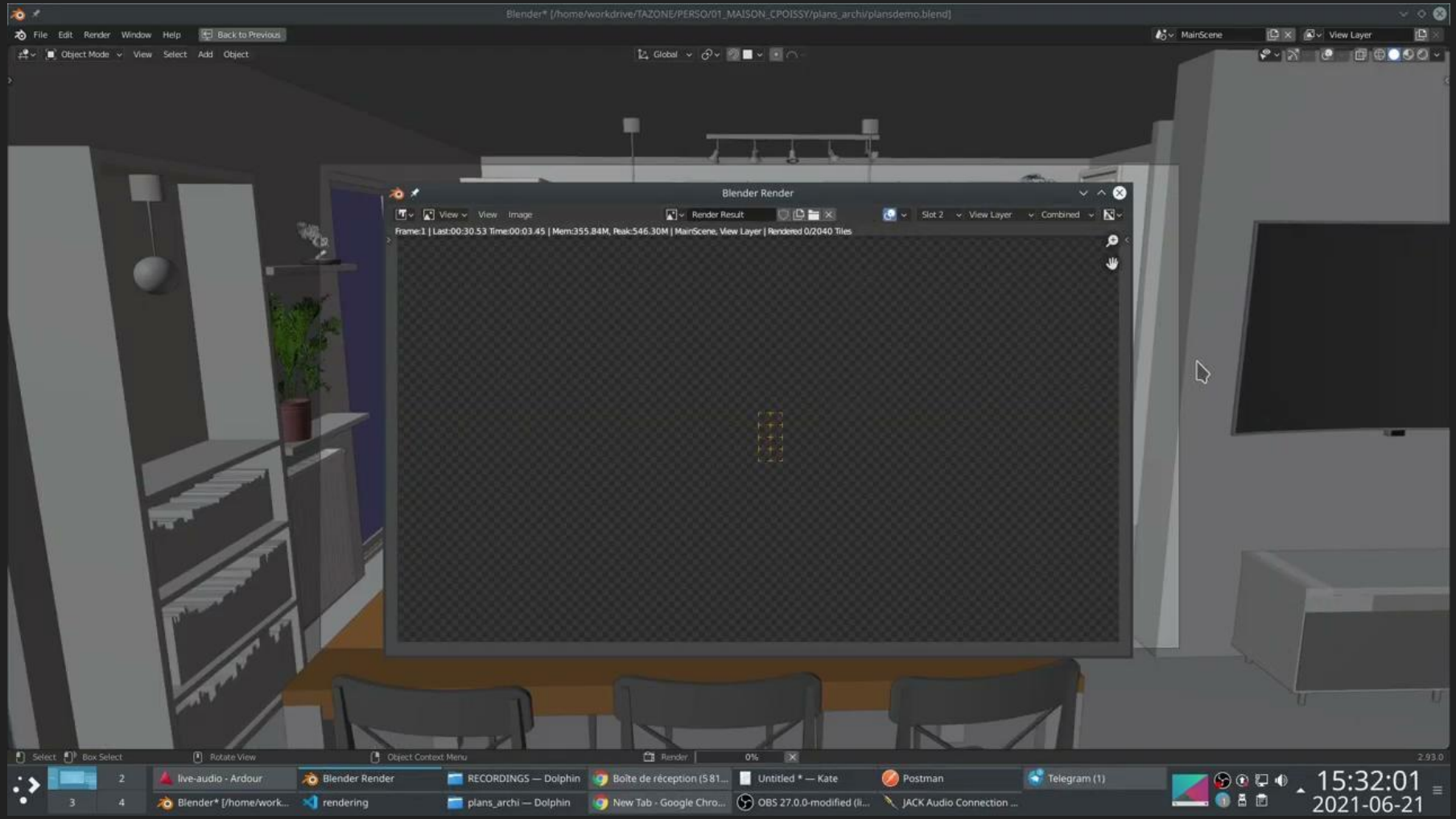
Un super résultat !


Blender* [/home/workdrive/TAZONE/PERSO/01_MAISON_CPOISSY/plans_archi/plansdemo.blend]
File Edit Render Window Help
Back to Previous
Object Mode View Select Add Object
Global
MainScene
View Layer
Blender Render
View View Image
Render Result
Slot 2
View Layer
Combined
Frame:1 | Last:00:30.53 Time:00:03.45 | Mem:355.84M, Peak:546.30M | MainScene, View Layer | Rendered 0/2040 Tiles
Select
Box Select
Rotate View
Object Context Menu
Render
0%
2.93.0
live-audio - Ardour
Blender Render
RECORDINGS — Dolphin
Boîte de réception (581...
Untitled * — Kate
Postman
Telegram (1)
Blender* [/home/work...
rendering
plans_archi — Dolphin
New Tab - Google Chro...
OBS 27.0.0-modified (li...
JACK Audio Connection ...
15:32:01
2021-06-21

Nos challenges

Attendre le moins possible

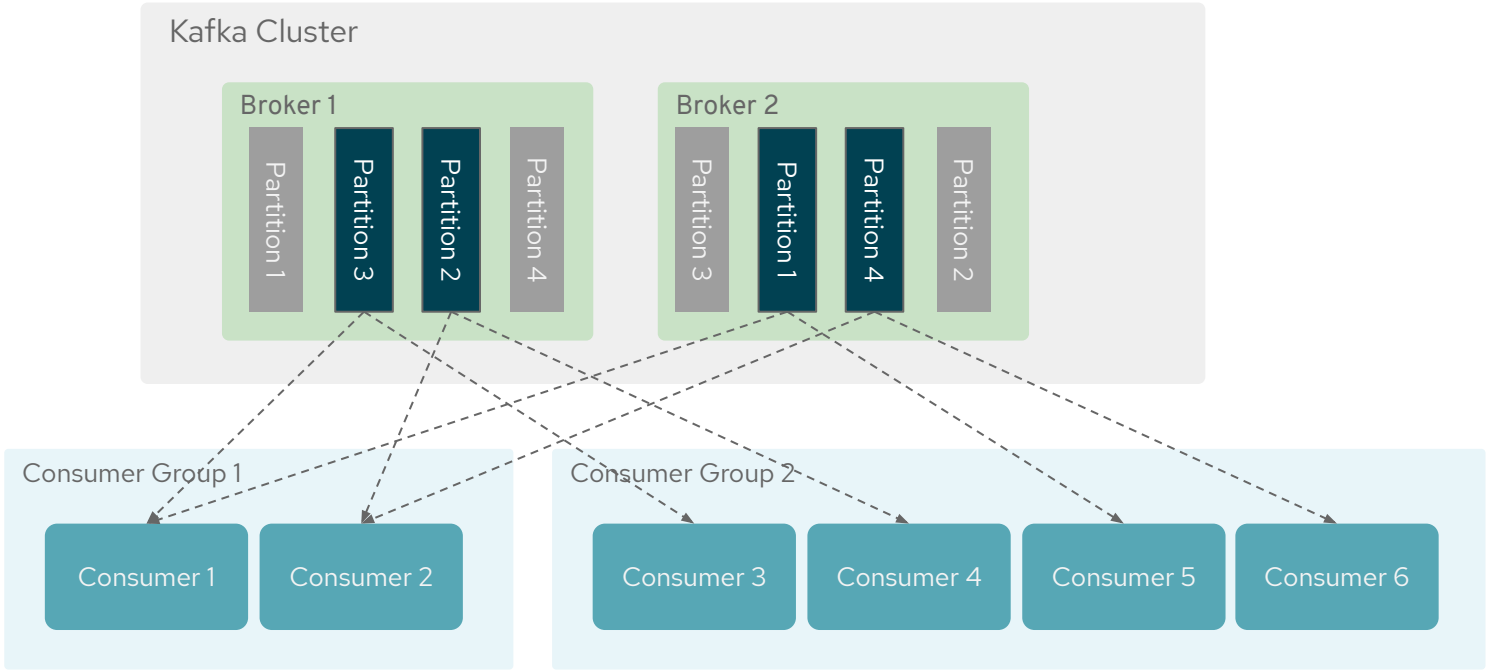
Payer le moins cher possible

Eclater les tuiles !

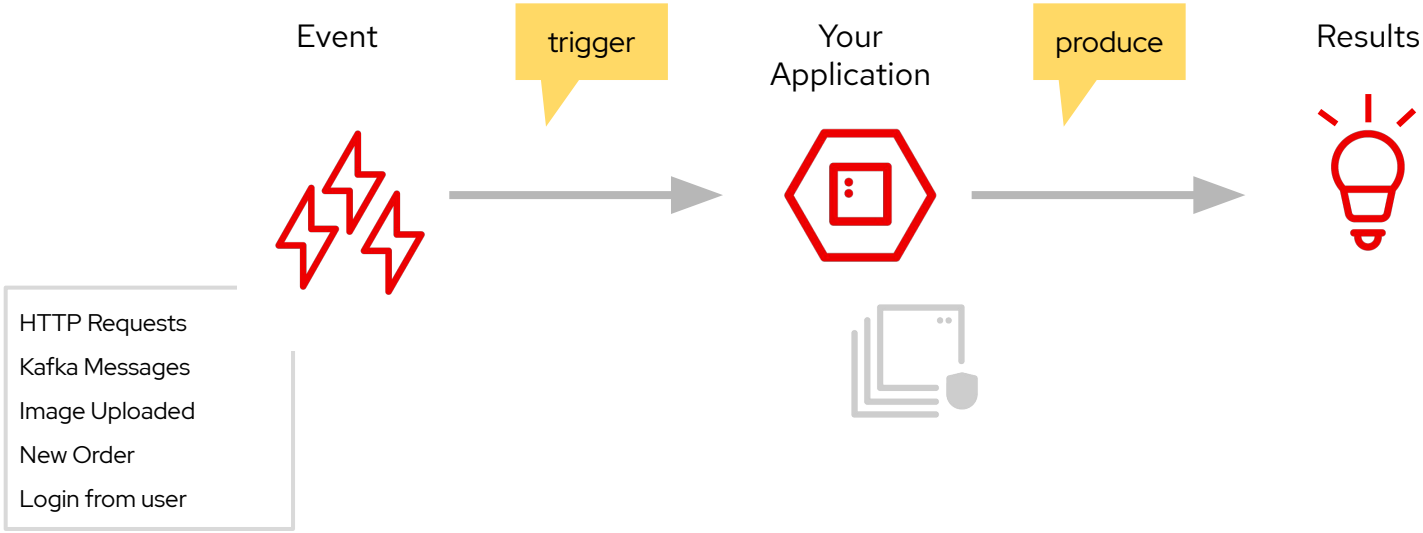
Les architectures distribuées au secours des bricoleurs !

Photo by Greyson Joralemon on Unsplash

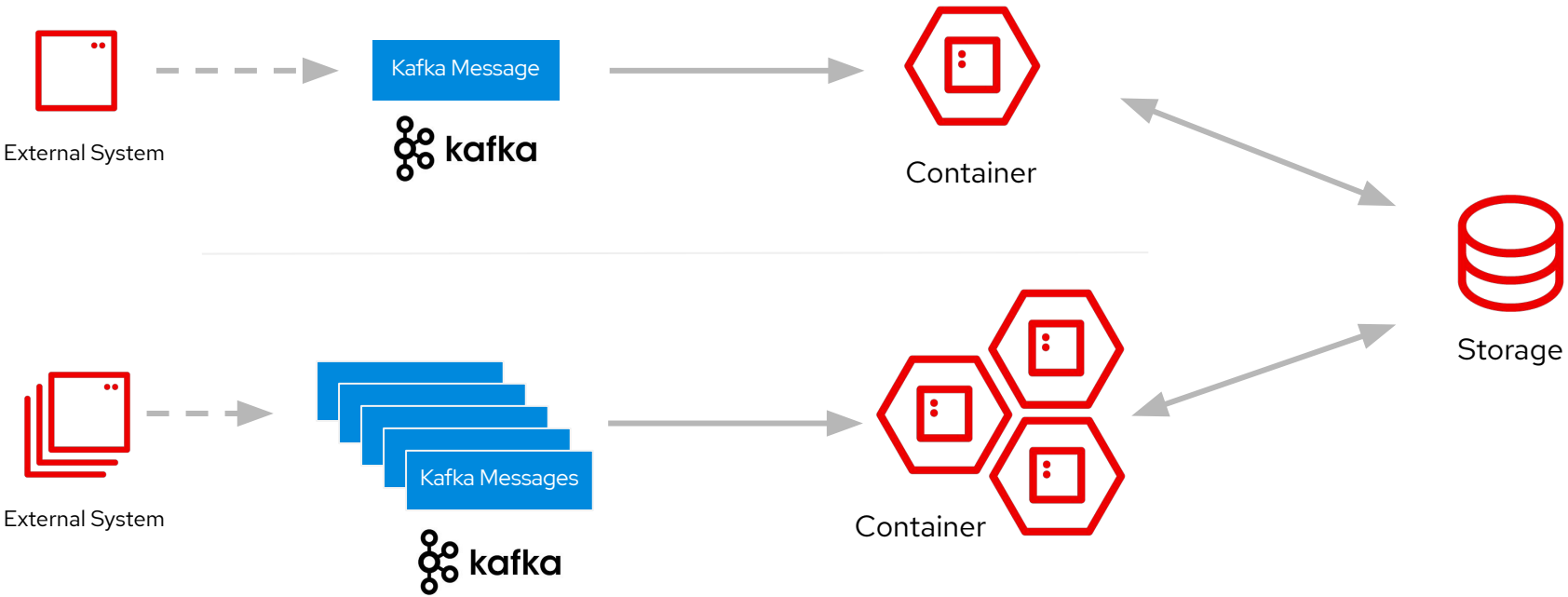
Parallélisme avec Kafka



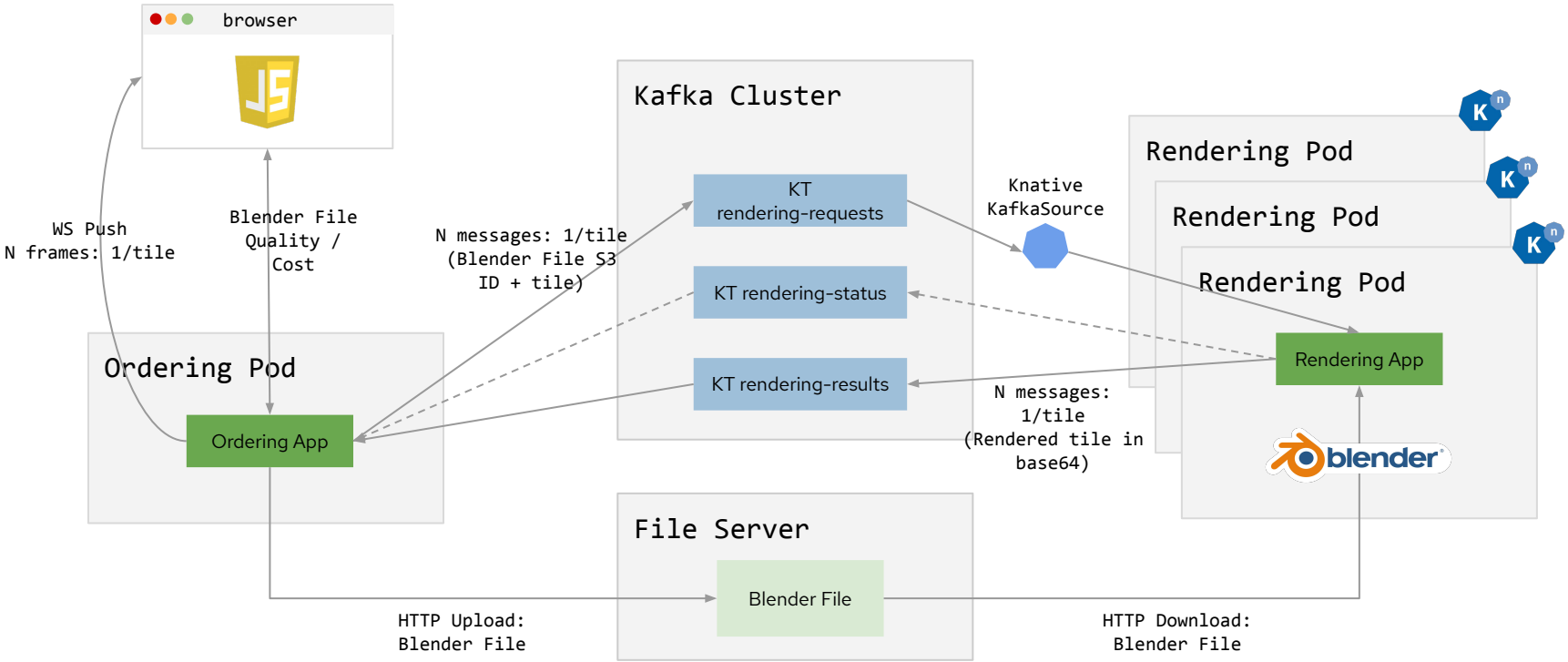
The “Serverless Pattern”



Knative Eventing



Architecture



OUTIL n°1

*Un beau broker **Kafka** et des **topics***

Photo by Greyson Joralemon on Unsplash

OUTIL n°2

Un composant ***Ordering***

Photo by Greyson Joralemon on Unsplash

Distribution des requêtes sur Kafka

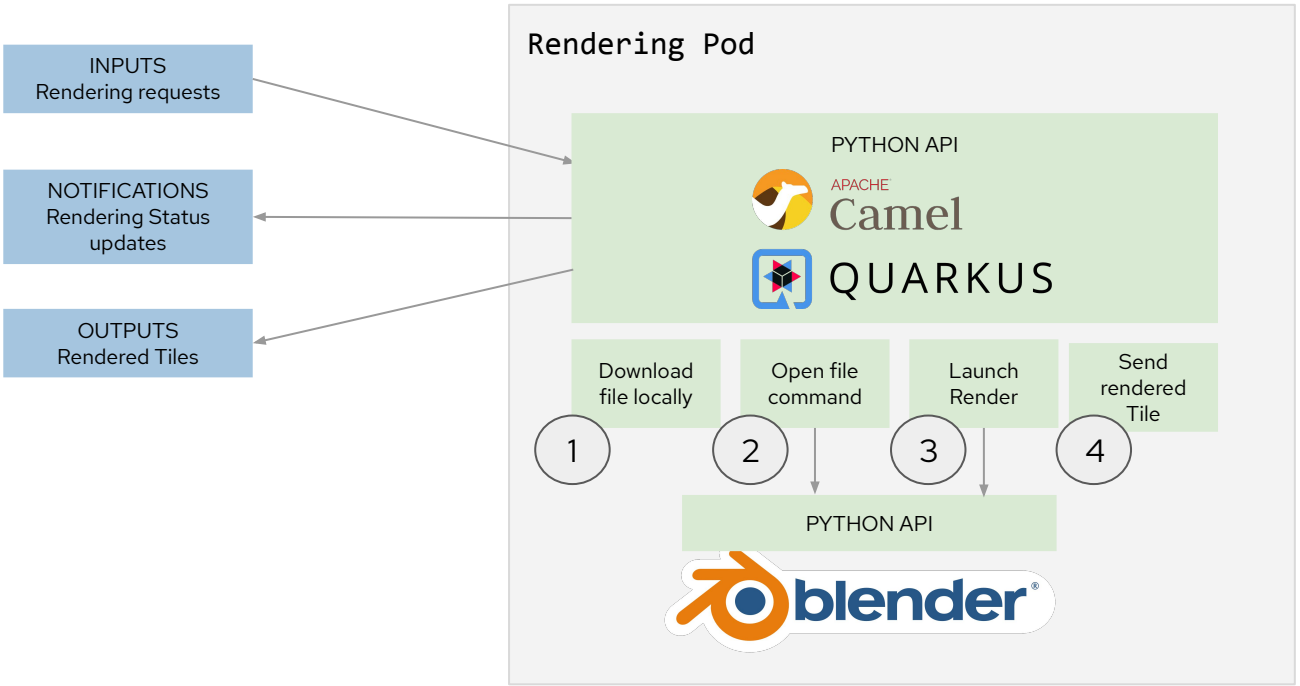
```
// Creating the number of requests corresponding to frame dividers.
int z = 0;
for (int x=0; x<order.getOption().getFrameDividers(); x++) {
  for (int y=0; y<order.getOption().getFrameDividers(); y++) {
     RenderingRequest request = new RenderingRequest();
     request.setRenderingId(renderingId);
     request.setObjectKey(order.getFileObject().getKey());

     // Publishing Rendering request on Kafka.
     OutgoingKafkaRecordMetadata metadata = OutgoingKafkaRecordMetadata.builder()
           .withTopic("rendering-requests")
           .withPartition(z++ % NUM_PARTITIONS)
           .build();
     renderingRequestPublisher.send(Message.of(request).addMetadata(metadata));
  }
}
```

OUTIL n°3

Un composant ***Rendering***

Photo by Greyson Joralemon on Unsplash

Architecture du composant Rendering



OUTIL n°4

*Une **KafkaSource** Knative*

Photo by Greyson Joralemon on Unsplash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Wrap-up
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Key takeaways

- Votre rendering-farm sur mesure avec Kafka & Knative !
  - Distribution et agrégation via Kafka
  - Utilisation sans réservation de ressources
  - Scalabilité (knative + machine autoscalers)

- Adopter Knative, qu'est-ce que ca veut dire ?
  - Le "Dev pur" reste le même
  - Mais configuration distribuée ... (KService, KSource, Broker)

- Checkout code at https://github.com/redhat-france-sa/knative-handyman


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Thank you !
@alainphm & lbroudoux