Webinar #10 - 19 April 2017
Isolates in the Cloud

Agenda

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- Quick introduction to Futures and Isolates

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- Building and launching a Linux VM with Dyalog APL on the Amazon Elastic Compute Cloud (EC2)

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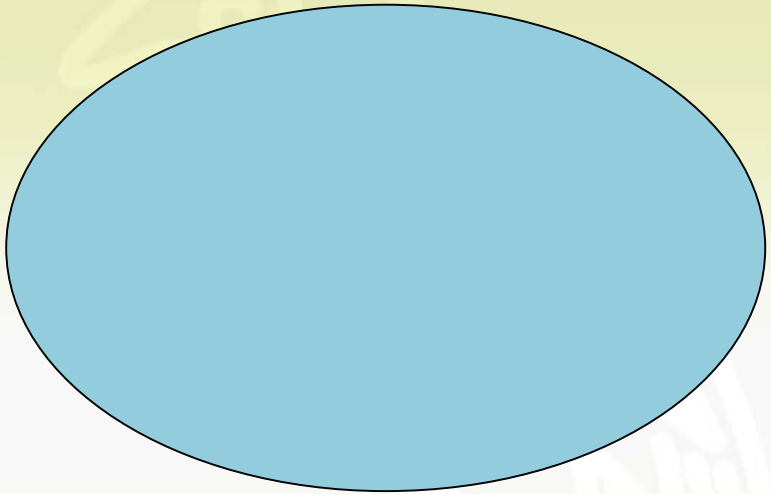
- Building and launching a Linux VM with Dyalog APL on the Amazon Elastic Compute Cloud (EC2)
- Starting 20 VM's and using them as isolate servers
- A quick demo of parallel each (`⍙⍙.EachX` in the isolate workspace since 16.0).

Quick Introduction to Isolates



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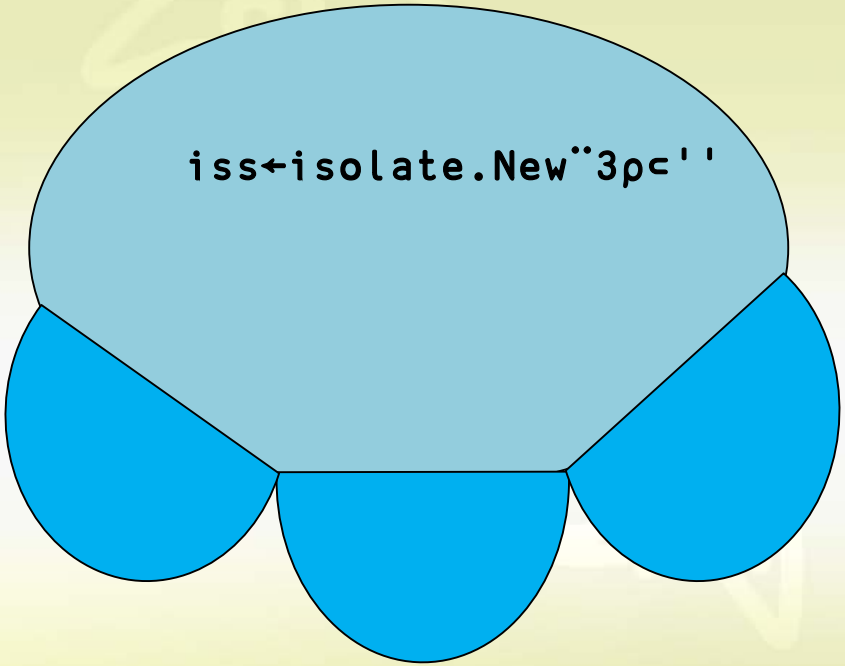

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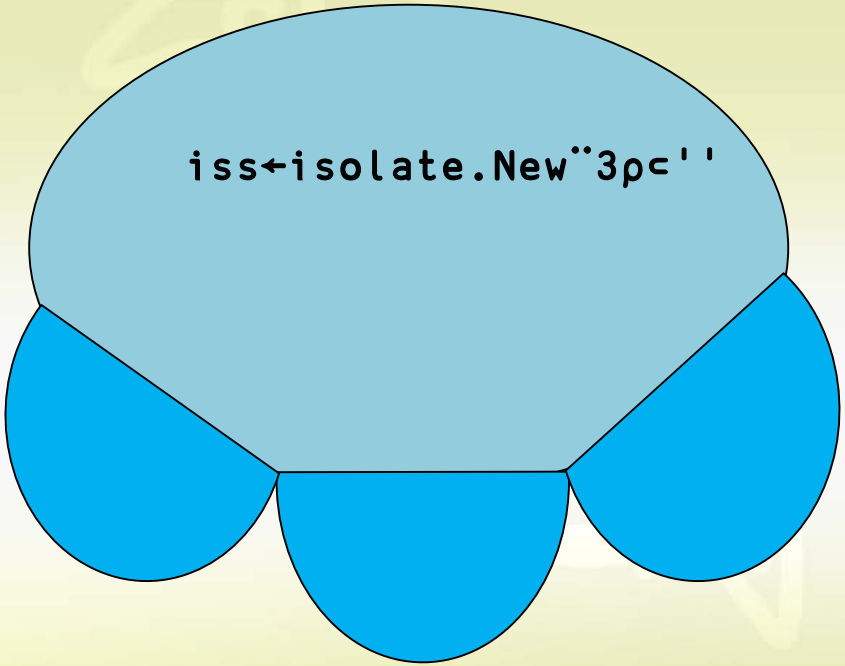
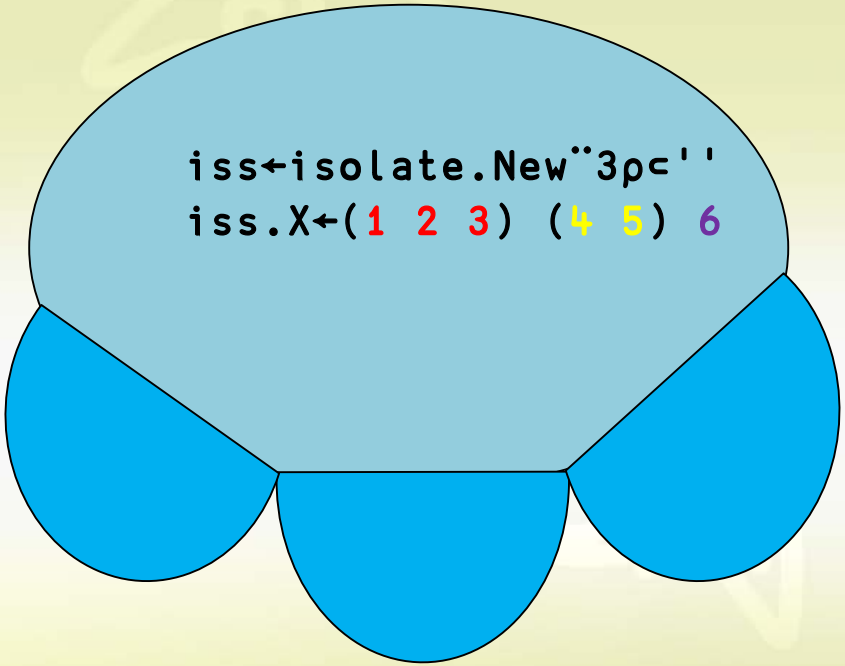


An isolate looks, tastes, and feels like a namespace, **except that**

Each isolate appears as an extension of the workspace, but exists in a **separate process**.

`iss` is a 3-element vector of **references to three isolates**.

Quick Introduction to Isolates



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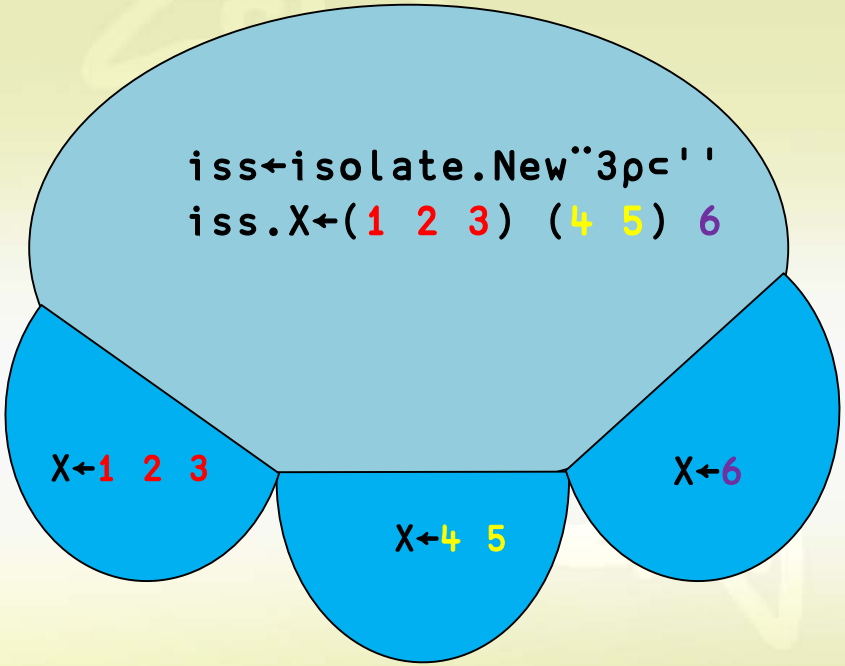

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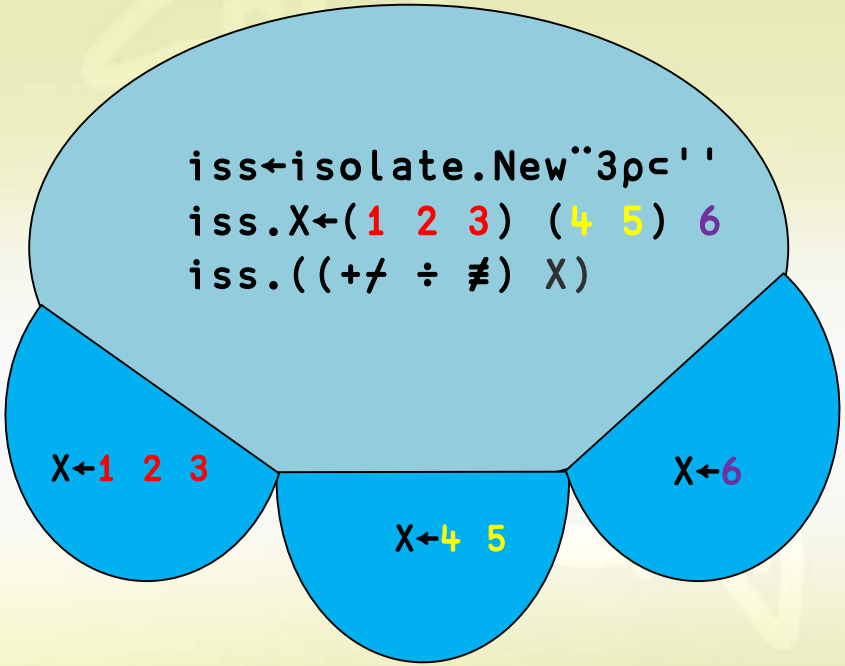

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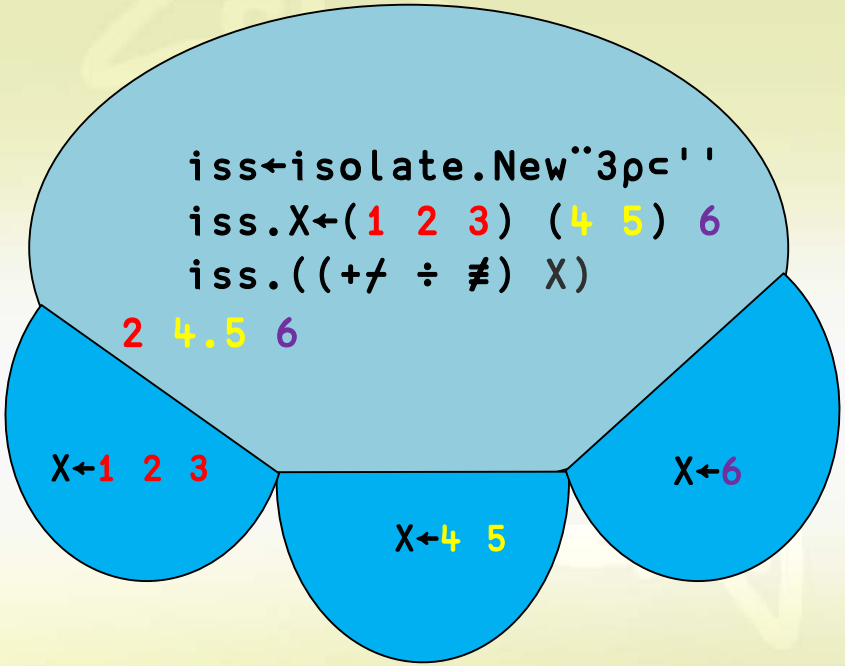

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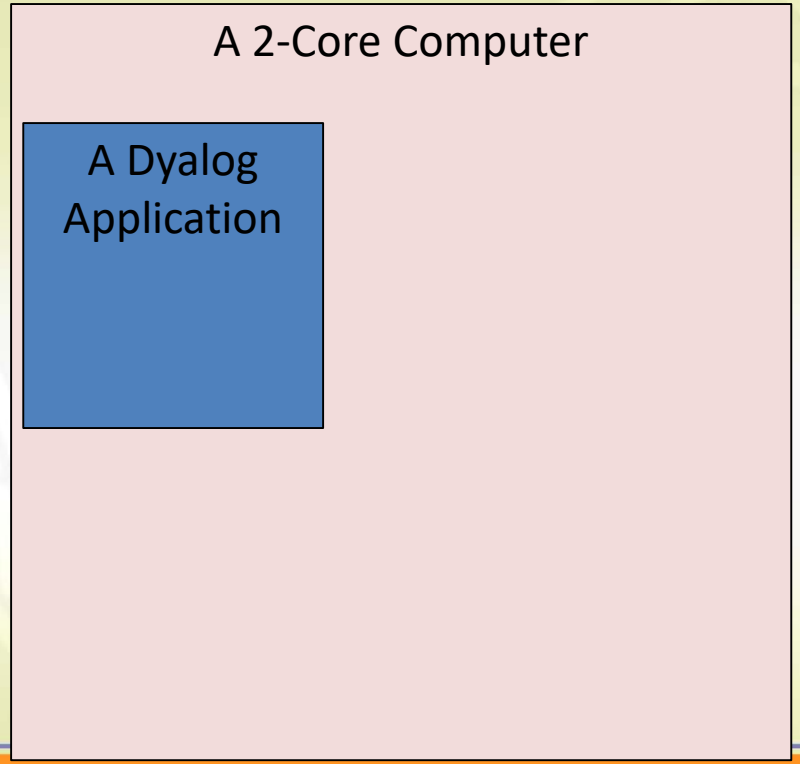
Isolate Demo

How isolates work



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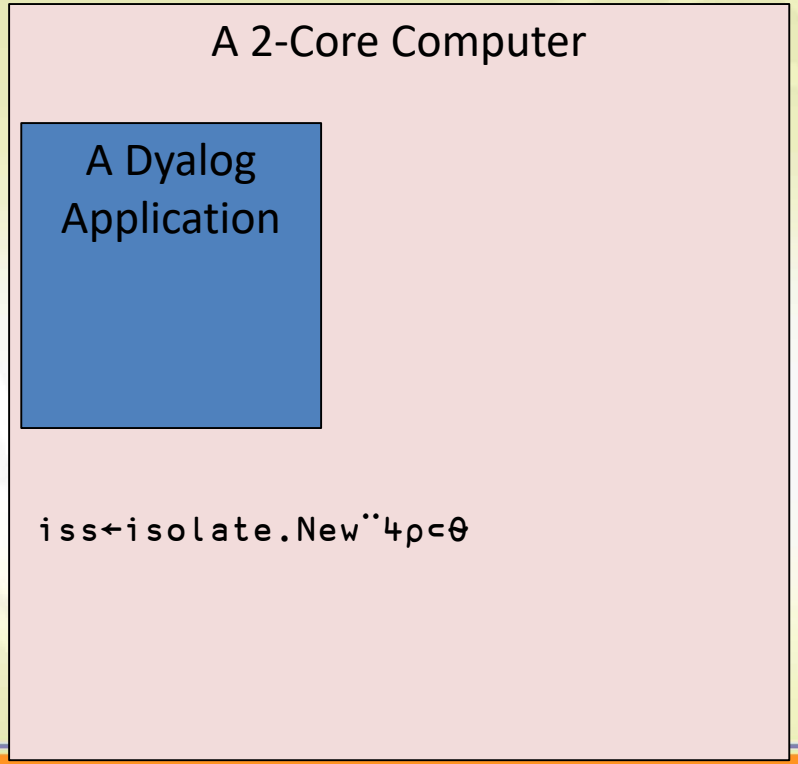

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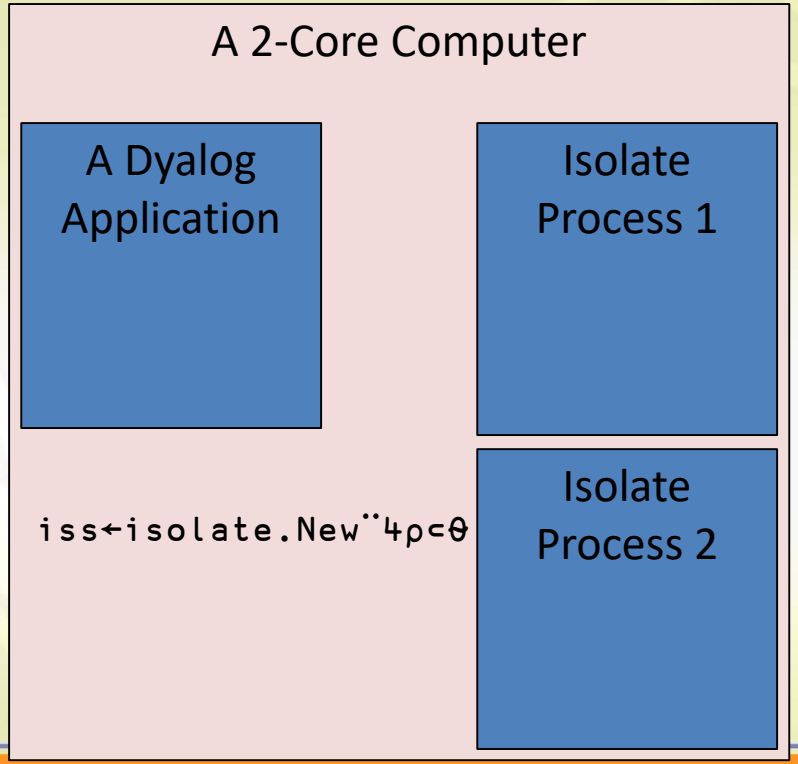

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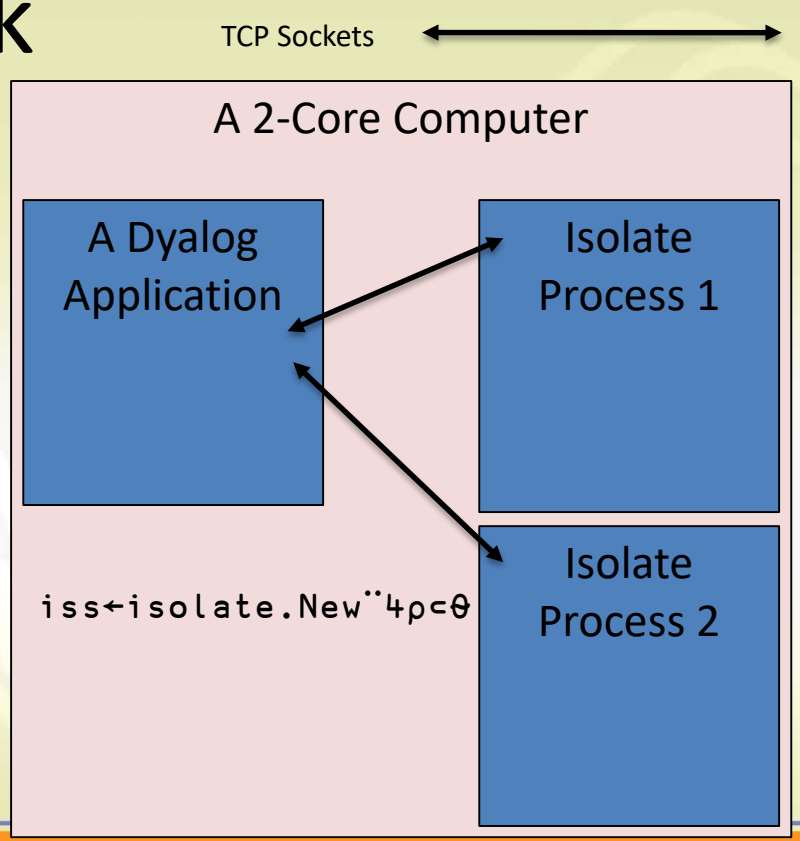

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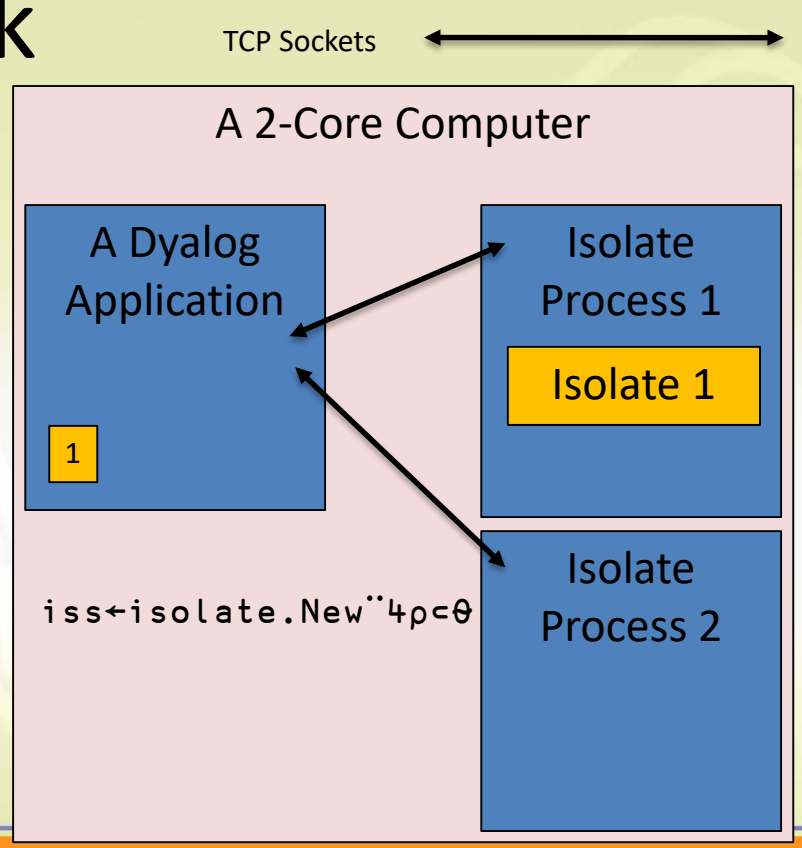

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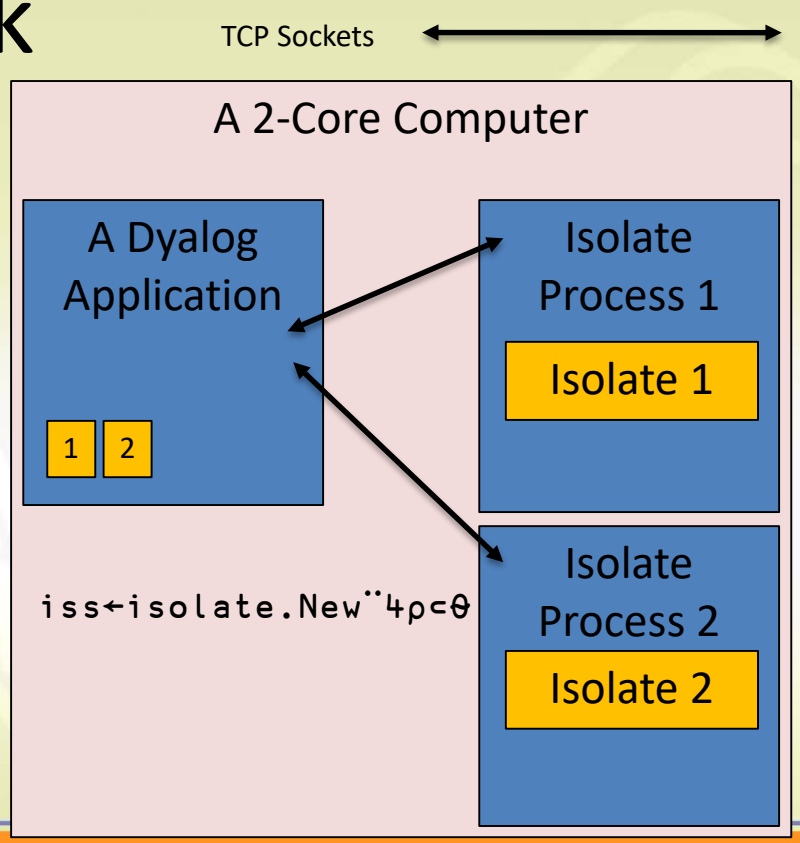

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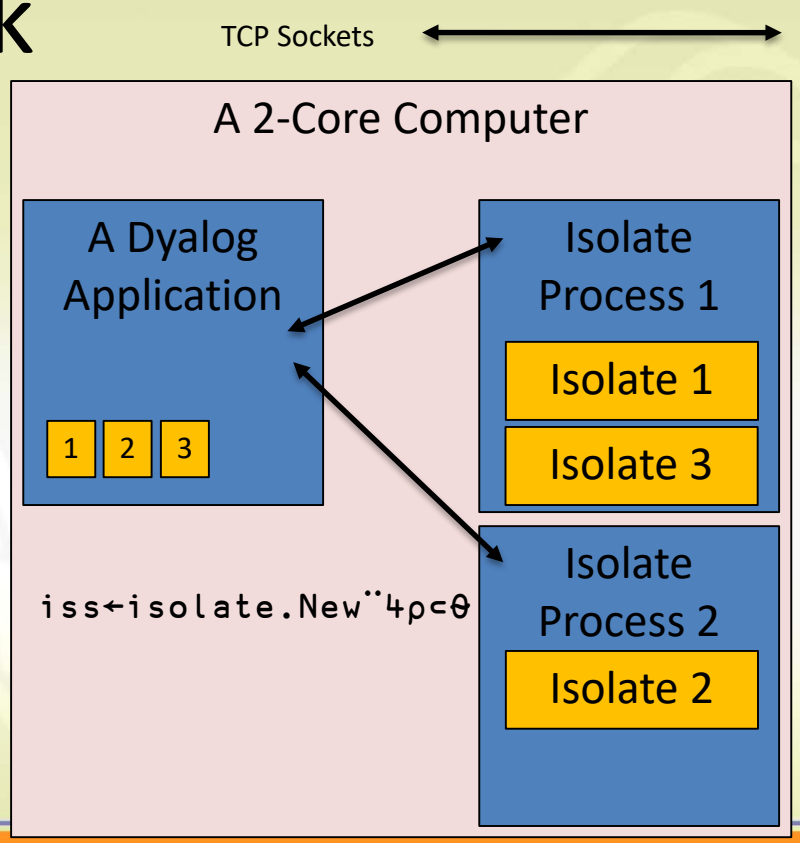

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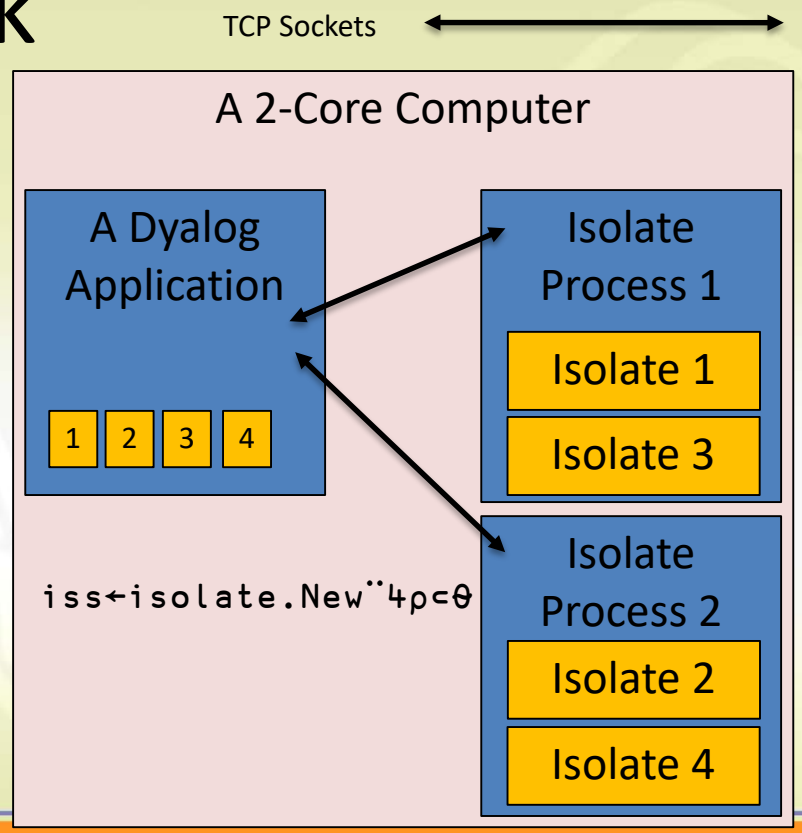

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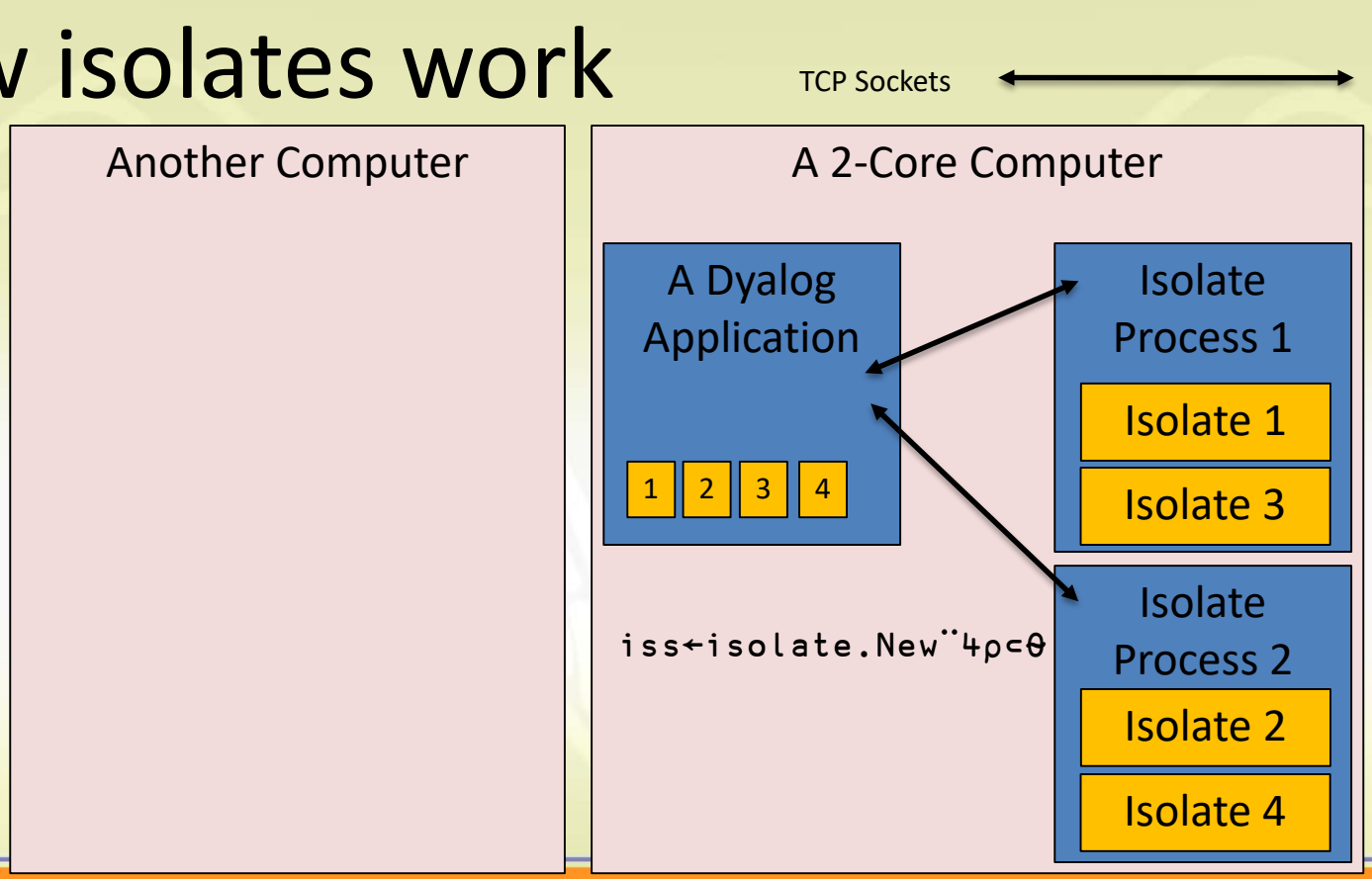

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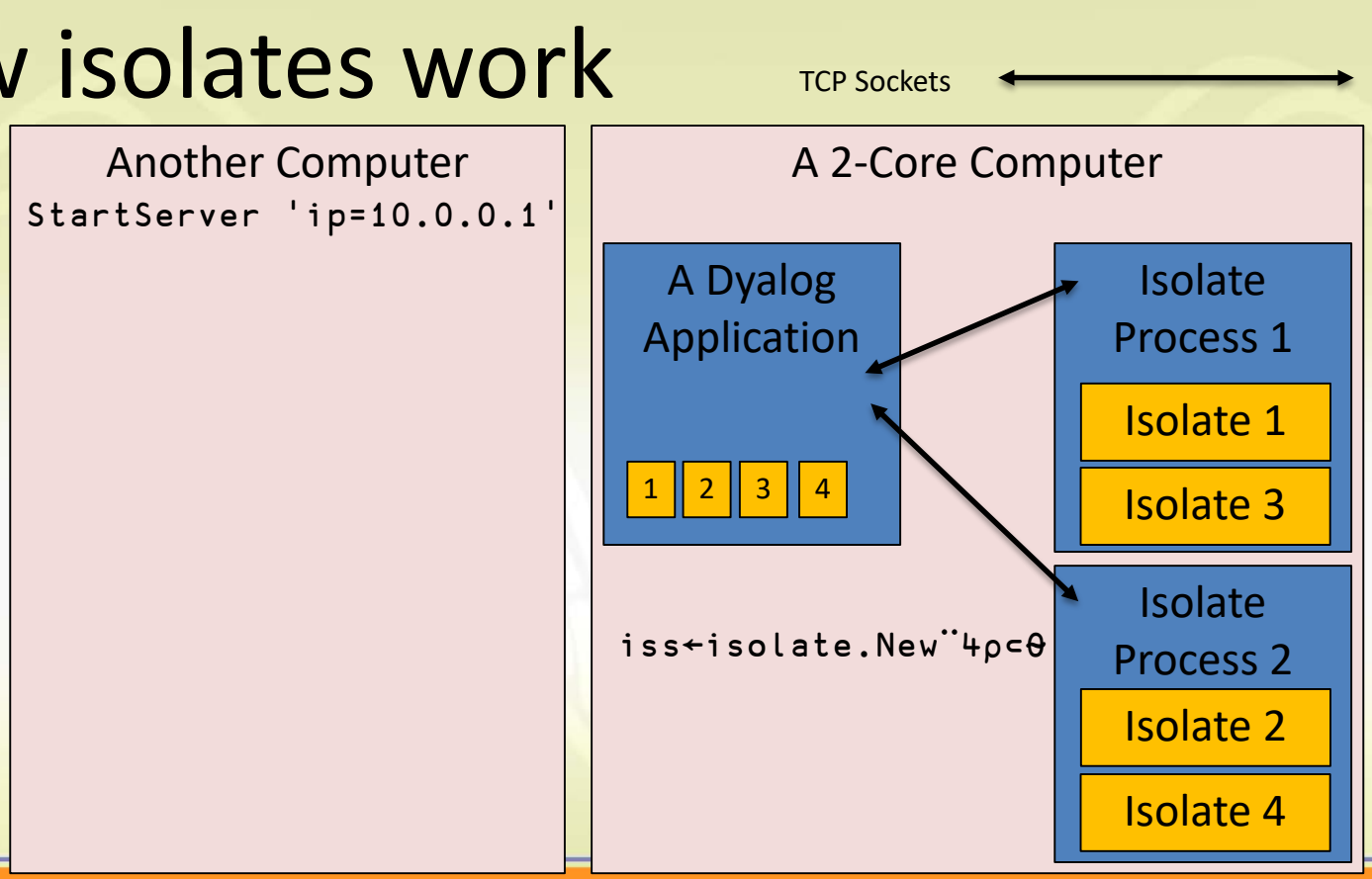

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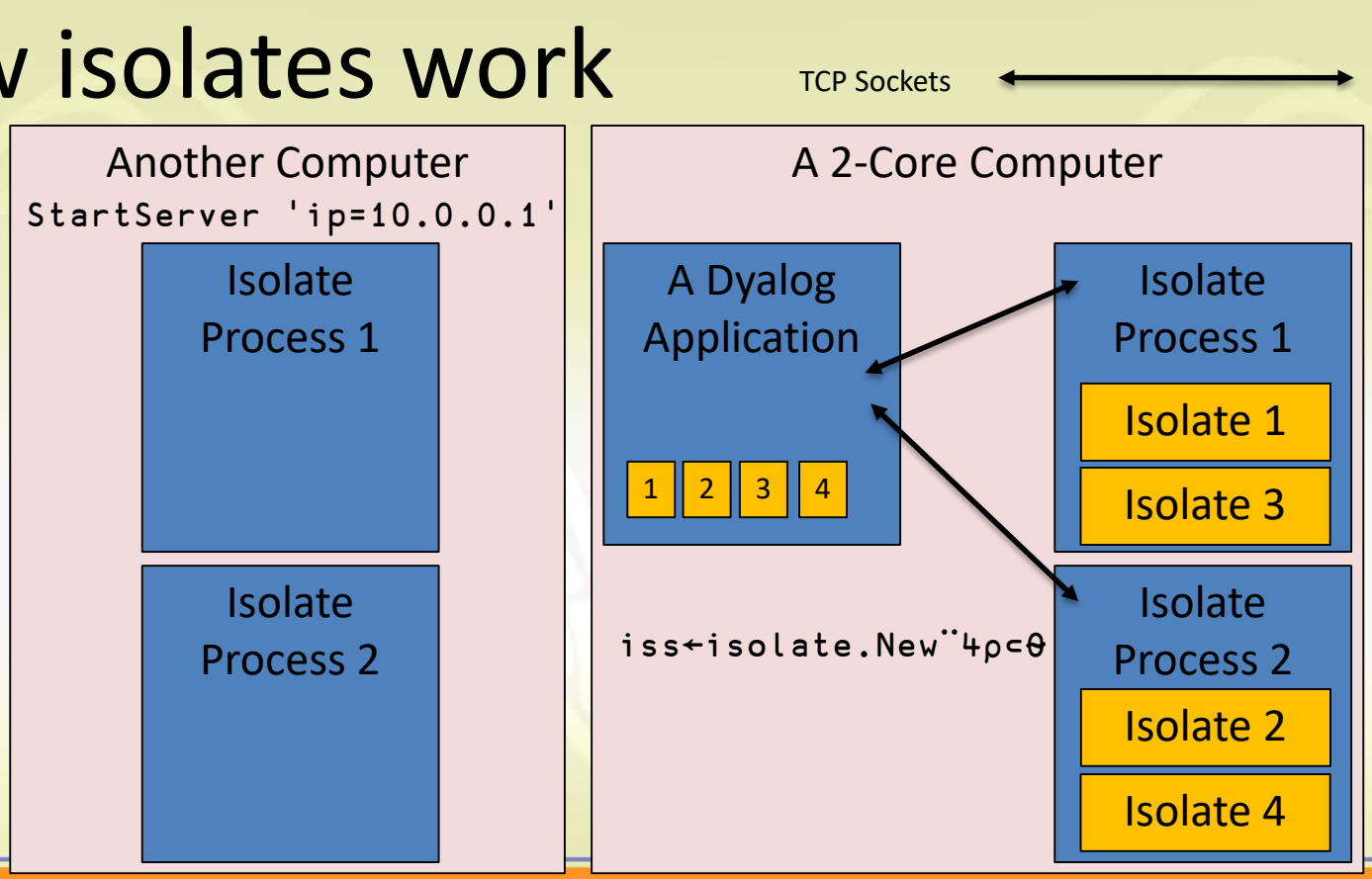

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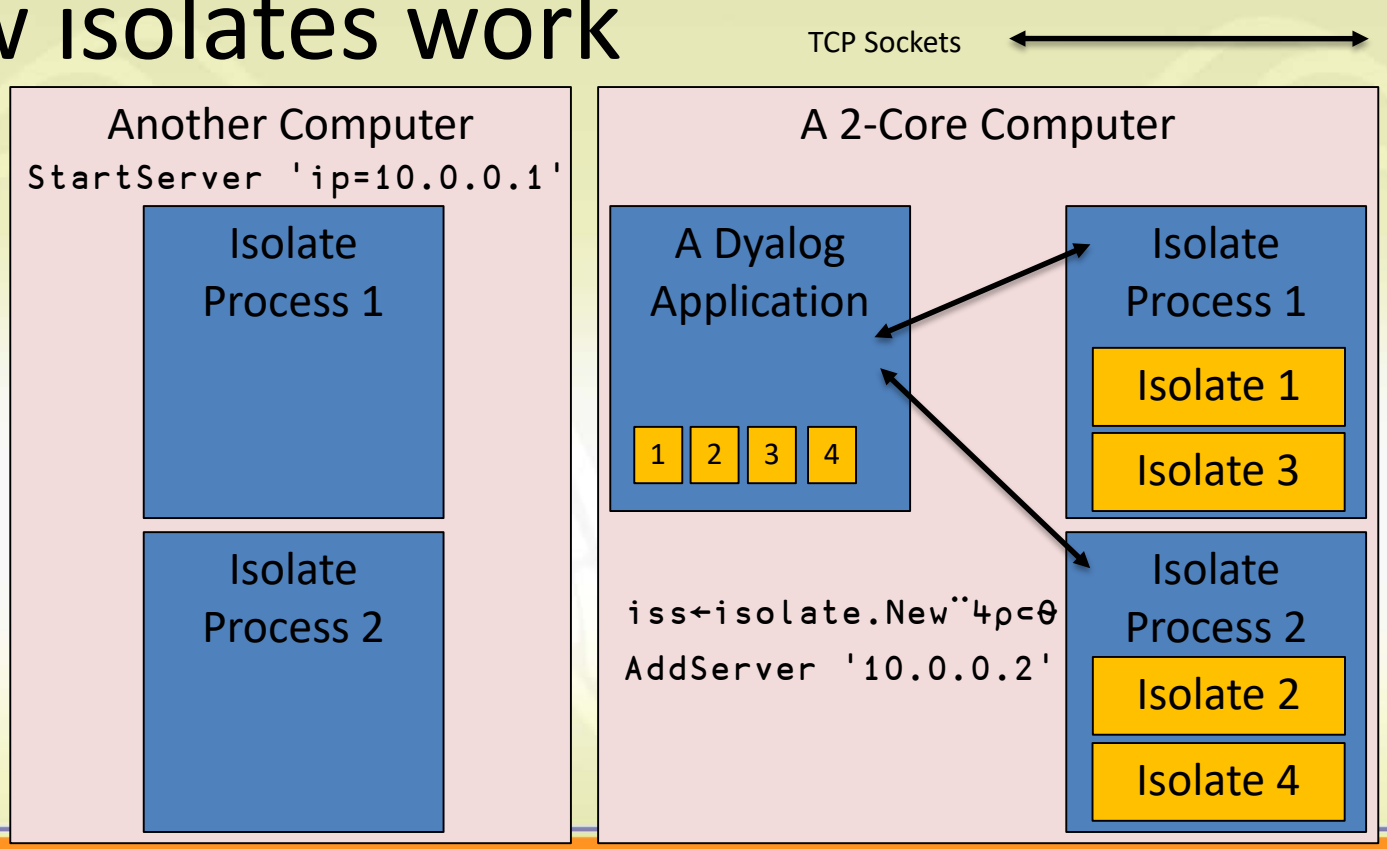

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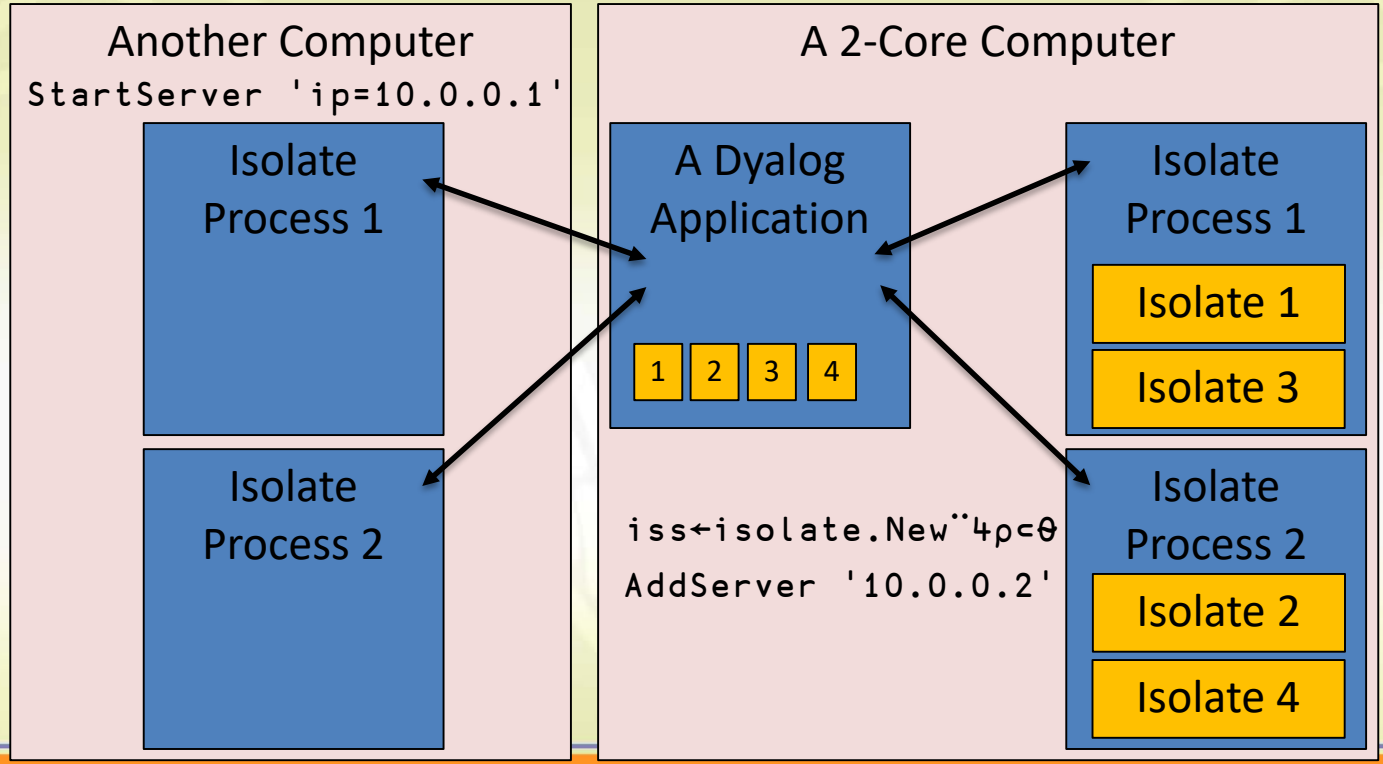

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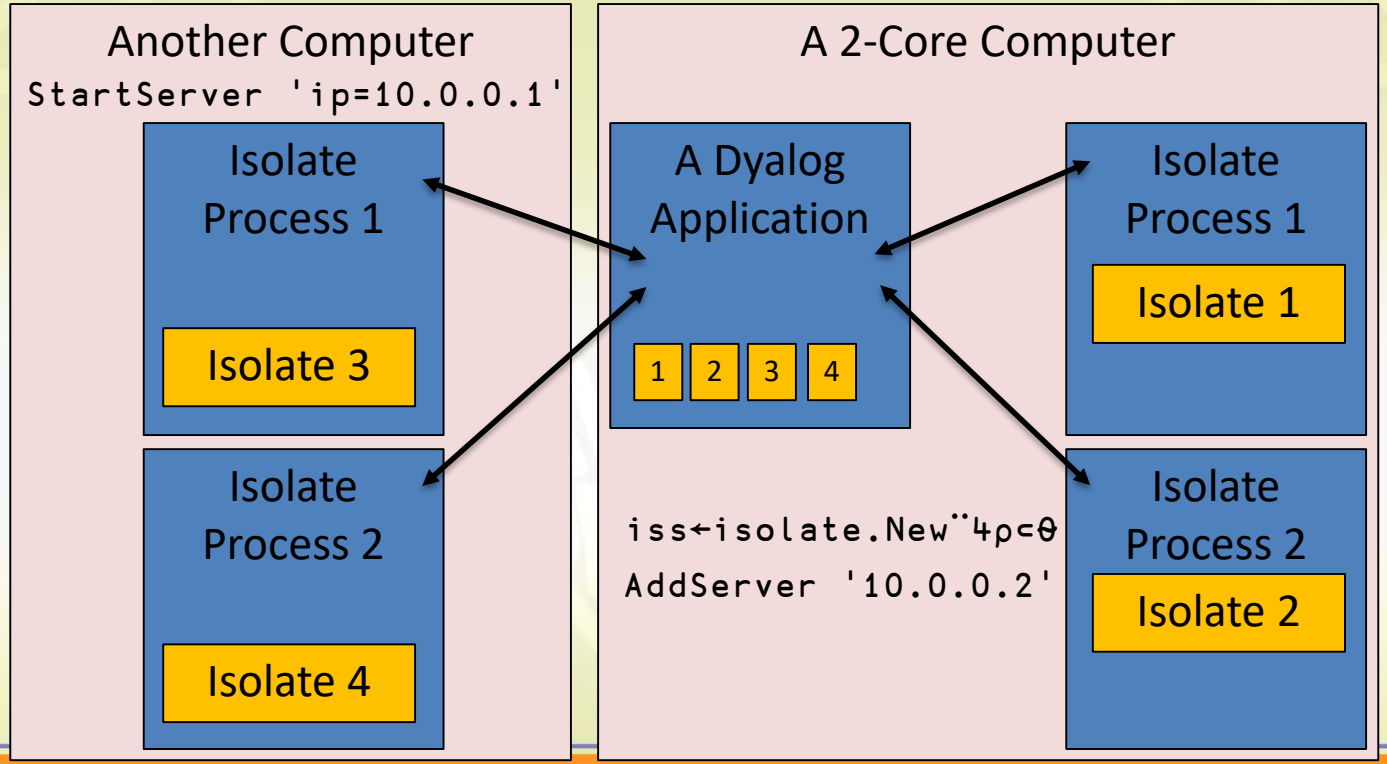

Isolate Demo

- For more on isolates, see for example "Parallel Programming in Dyalog APL" https://dyalog.tv/Dyalog14/?v=JvLWvyG7JEs

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- Starting 20 VM's and using them as isolate servers
- A quick demo of ll.EachX

Create an Amazon Machine Image (AMI)

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- Select a base AMI with Ubuntu Linux installed

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- Select a base AMI with Ubuntu Linux installed
- Configure Firewall

Create an Amazon Machine Image (AMI)

- Select a base AMI with Ubuntu Linux installed
- Configure Firewall
- Launch the VM

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EC2 Management Conso

Secure | https://eu-west-1.console.aws.amazon.com/ec2/v2/home?region=eu-west-1#Instances:sort=desc:launchTime

Apps APL

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EC2 Dashboard
Events
Tags
Reports
Limits

INSTANCES
Instances
Launch Templates
Spot Requests
Reserved Instances
Dedicated Hosts
Scheduled Instances

IMAGES
AMIs
Bundle Tasks

ELASTIC BLOCK STORE
Volumes
Snapshots

NETWORK & SECURITY
Security Groups
Elastic IPs
Placement Groups
Key Pairs
Network Interfaces

Launch Instance | Connect | Actions

Launch Instance
Launch instance from template

Filter by tags and

1 to 1 of 1

Name	Instance ID	Instance State	Status Che	IPv4 Public IP	Key Name	Launch Time	Security Groups	Image ID
isolate server	i-0a772f2d438f5b562	stopped		-	AWS-JSONServer	April 1, 2018 at 4:26:27 PM UTC+2	Isolate, RIDE, ssh	ami-4e612f37

Instance: i-0a772f2d438f5b562 (isolate server) Private IP: 172.31.28.132

Description | Status Checks | Monitoring | Tags

Instance ID	i-0a772f2d438f5b562	Public DNS (IPv4)	-
Instance state	stopped	IPv4 Public IP	-
Instance type	t1.micro	IPv6 IPs	-
Elastic IPs		Private DNS	ip-172-31-28-132.eu-west-1.compute.internal
Availability zone	eu-west-1a	Private IPs	172.31.28.132
Security groups	Isolate, RIDE, ssh. view inbound rules	Secondary private IPs	
Scheduled events	-	VPC ID	vpc-854325e2
AMI ID	Cannot load details for ami-4e612f37. You may not be permitted to view it.	Subnet ID	subnet-617e1828
Platform	-	Network interfaces	eth0
IAM role	-	Source/dest. check	True
Key pair name	AWS-JSONServer	T2 Unlimited	-

Feedback English (US)

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1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 1: Choose an Amazon Machine Image (AMI)

Cancel and Exit

Red Hat Enterprise Linux 7.5 (HVM), SSD Volume Type - ami-7c491f05

Red Hat
Free tier eligible

Red Hat Enterprise Linux version 7.5 (HVM), EBS General Purpose (SSD) Volume Type

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Select

64-bit

Ubuntu Server 16.04 LTS (HVM), SSD Volume Type - ami-f90a4880

Free tier eligible

Ubuntu Server 16.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (http://www.ubuntu.com/cloud/services).

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Select

64-bit

Amazon RDS

Are you launching a database instance? Try Amazon RDS. Hide

Amazon Relational Database Service (RDS) makes it easy to set up, operate, and scale your database on AWS by automating time-consuming database management tasks. With RDS, you can easily deploy **Amazon Aurora, MariaDB, MySQL, Oracle, PostgreSQL, and SQL Server** databases on AWS. Aurora is a MySQL- and PostgreSQL-compatible, enterprise-class database at 1/10th the cost of commercial databases. Learn more about RDS

Launch a database using RDS

Microsoft Windows Server 2016 Base - ami-4cc09a35

Windows
Free tier eligible

Microsoft Windows 2016 Datacenter edition. [English]

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Select

64-bit

Deep Learning AMI (Ubuntu) Version 7.0 - ami-0bc19972

Free tier eligible

Comes with latest binaries of deep learning frameworks pre-installed in separate virtual environments: MXNet, TensorFlow, Caffe, Caffe2, PyTorch, Keras, Chainer, Theano and CNTK. Fully-configured with NVidia CUDA, cuDNN and NCCL as well as Intel MKL-DNN

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Select

64-bit

Deep Learning AMI (Amazon Linux) Version 7.0 - ami-50570f29

Select

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Secure | https://eu-west-1.console.aws.amazon.com/ec2/v2/home?region=eu-west-1#LaunchInstanceWizard:

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Select

EC2 Management Conso

Secure | https://eu-west-1.console.aws.amazon.com/ec2/v2/home?region=eu-west-1#LaunchInstanceWizard:

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1. Choose AMI | 2. Choose Instance Type | 3. Configure Instance | 4. Add Storage | 5. Add Tags | 6. Configure Security Group | 7. Review

Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. Learn more about instance types and how they can meet your computing needs.

Filter by: All instance types | Current generation | Show/Hide Columns

Currently selected: t2.micro (Variable ECUs, 1 vCPUs, 2.5 GHz, Intel Xeon Family, 1 GiB memory, EBS only)

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
☐	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
☑	General purpose	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate	Yes
☐	General purpose	t2.small	1	2	EBS only	-	Low to Moderate	Yes
☐	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
☐	General purpose	t2.large	2	8	EBS only	-	Low to Moderate	Yes
☐	General purpose	t2.xlarge	4	16	EBS only	-	Moderate	Yes
☐	General purpose	t2.2xlarge	8	32	EBS only	-	Moderate	Yes
☐	General purpose	m5.large	2	8	EBS only	Yes	Up to 10 Gigabit	Yes
☐	General purpose	m5.xlarge	4	16	EBS only	Yes	Up to 10 Gigabit	Yes
☐	General purpose	m5.2xlarge	8	32	EBS only	Yes	Up to 10 Gigabit	Yes

Cancel | Previous | Review and Launch | Next: Configure Instance Details

Feedback English (US)

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- VMware Cloud on AWS
- Systems Manager
- Server Migration Services
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- Documentation

Region: EU (Ireland)

	vCPU	ECU	Memory (GiB)	Instance Storage (GB)	Linux/UNIX Usage
General Purpose - Current Generation					
t2.nano	1	Variable	0.5	EBS Only	$0.0063 per Hour
t2.micro	1	Variable	1	EBS Only	$0.0126 per Hour
t2.small	1	Variable	2	EBS Only	$0.025 per Hour
t2.medium	2	Variable	4	EBS Only	$0.05 per Hour
t2.large	2	Variable	8	EBS Only	$0.1008 per Hour
t2.xlarge	4	Variable	16	EBS Only	$0.2016 per Hour
t2.2xlarge	8	Variable	32	EBS Only	$0.4032 per Hour
m5.large	2	10	8	EBS Only	$0.107 per Hour
m5.xlarge	4	15	16	EBS Only	$0.214 per Hour
m5.2xlarge	8	31	32	EBS Only	$0.428 per Hour
m5.4xlarge	16	61	64	EBS Only	$0.856 per Hour
m5.12xlarge	48	173	192	EBS Only	$2.568 per Hour
m5.24xlarge	96	345	384	EBS Only	$5.136 per Hour
m4.large	2	6.5	8	EBS Only	$0.111 per Hour
m4.xlarge	4	13	16	EBS Only	$0.222 per Hour

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GPU Instances - Current Generation

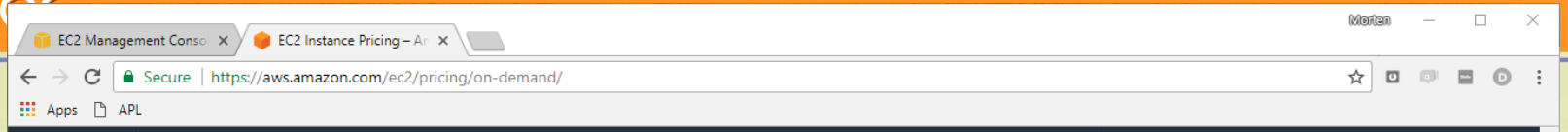
p2.xlarge	4	12	61	EBS Only	$0.972 per Hour
p2.8xlarge	32	94	488	EBS Only	$7.776 per Hour
p2.16xlarge	64	188	732	EBS Only	$15.552 per Hour
p3.2xlarge	8	23.5	61	EBS Only	$3.305 per Hour
p3.8xlarge	32	94	244	EBS Only	$13.22 per Hour
p3.16xlarge	64	188	488	EBS Only	$26.44 per Hour
g3.4xlarge	16	47	122	EBS Only	$1.21 per Hour
g3.8xlarge	32	94	244	EBS Only	$2.42 per Hour
g3.16xlarge	64	188	488	EBS Only	$4.84 per Hour

FPGA Instances - Current Generation

f1.2xlarge	8	26	122	1 x 470 NVMe SSD	$1.815 per Hour
f1.16xlarge	64	188	976	4 x 940 NVMe SSD	$14.52 per Hour

Memory Optimized - Current Generation

x1.16xlarge	64	174.5	976	1 x 1920 SSD	$8.003 per Hour
x1.32xlarge	128	349	1952	2 x 1920 SSD	$16.006 per Hour
x1e.xlarge	4	12	122	1 x 120 SSD	$1 per Hour
x1e.2xlarge	8	23	244	1 x 240 SSD	$2 per Hour



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Storage Optimized - Current Generation

i3.large	2	7	15.25	1 x 475 NVMe SSD	$0.172 per Hour
i3.xlarge	4	13	30.5	1 x 950 NVMe SSD	$0.344 per Hour
i3.2xlarge	8	27	61	1 x 1900 NVMe SSD	$0.688 per Hour
i3.4xlarge	16	53	122	2 x 1900 NVMe SSD	$1.376 per Hour
i3.8xlarge	32	99	244	4 x 1900 NVMe SSD	$2.752 per Hour
i3.16xlarge	64	200	488	8 x 1900 NVMe SSD	$5.504 per Hour
h1.2xlarge	8	26	32	1 x 2000 HDD	$0.611 per Hour
h1.4xlarge	16	53.5	64	2 x 2000 HDD	$1.222 per Hour
h1.8xlarge	32	99	128	4 x 2000 HDD	$2.444 per Hour
h1.16xlarge	64	188	256	8 x 2000 HDD	$4.888 per Hour
d2.xlarge	4	14	30.5	3 x 2000 HDD	$0.735 per Hour
d2.2xlarge	8	28	61	6 x 2000 HDD	$1.47 per Hour
d2.4xlarge	16	56	122	12 x 2000 HDD	$2.94 per Hour
d2.8xlarge	36	116	244	24 x 2000 HDD	$5.88 per Hour

Except as otherwise noted, our prices are exclusive of applicable taxes and duties, including VAT and applicable sales tax. For customers with a Japanese billing address, use of AWS is subject to Japanese Consumption Tax. Learn more.

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Secure | https://aws.amazon.com/ec2/pricing/on-demand/

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- Documentation

Data Transfer OUT From Amazon EC2 To Internet

First 1 GB / month	$0.000 per GB
Up to 10 TB / month	$0.090 per GB
Next 40 TB / month	$0.085 per GB
Next 100 TB / month	$0.070 per GB
Next 350 TB / month	$0.050 per GB
Next 524 TB / month	Contact Us
Next 4 PB / month	Contact Us
Greater than 5 PB / month	Contact Us

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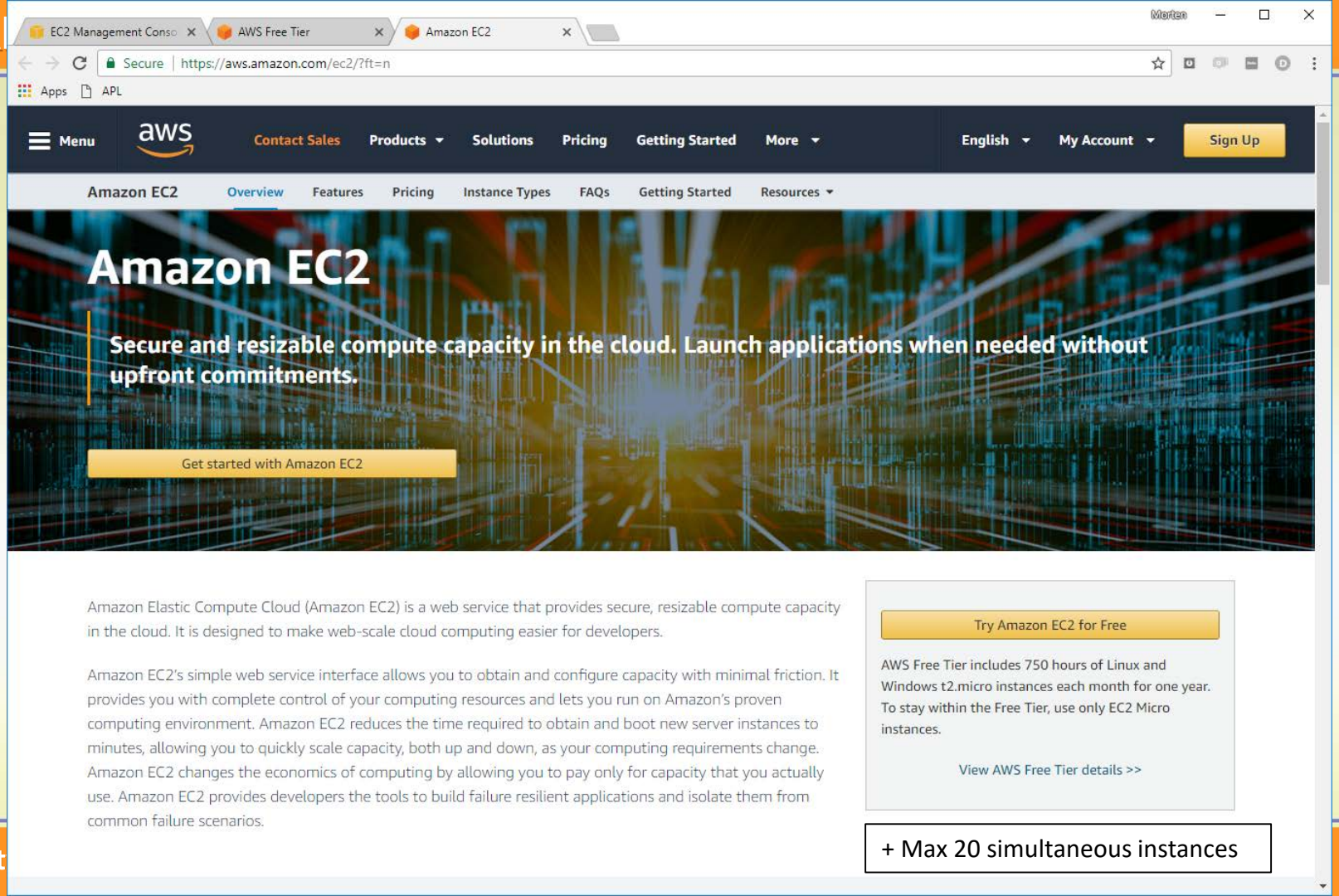
Rate tiers take into account your aggregate usage for Data Transfer Out to the Internet across Amazon EC2, Amazon S3, Amazon Glacier, Amazon RDS, Amazon Redshift, Amazon SES, Amazon SimpleDB, Amazon SQS, Amazon SNS, Amazon DynamoDB, AWS Storage Gateway, and Amazon CloudWatch Logs.

Data transferred "in" to and "out" of Amazon EC2, Amazon RDS, Amazon Redshift , Amazon DynamoDB Accelerator (DAX), and Amazon



+ Max 20 simultaneous instances

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1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

AMI Details

Edit AMI

Ubuntu Server 16.04 LTS (HVM), SSD Volume Type - ami-f90a4880

Free tier eligible

Ubuntu Server 16.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (http://www.ubuntu.com/cloud/services).

Root Device Type: ebs Virtualization type: hvm

Instance Type

Edit instance type

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	Variable	1	1	EBS only	-	Low to Moderate

Security Groups

Edit security groups

Security group name launch-wizard-2
Description launch-wizard-2 created 2018-04-19T12:30:13.470+02:00

Type	Protocol	Port Range	Source	Description

This security group has no rules

Instance Details

Edit instance details

Storage

Edit storage

Tags

Edit tags

Cancel Previous Launch

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Secure | https://eu-west-1.console.aws.amazon.com/ec2/v2/home?region=eu-west-1#LaunchInstanceWizard:

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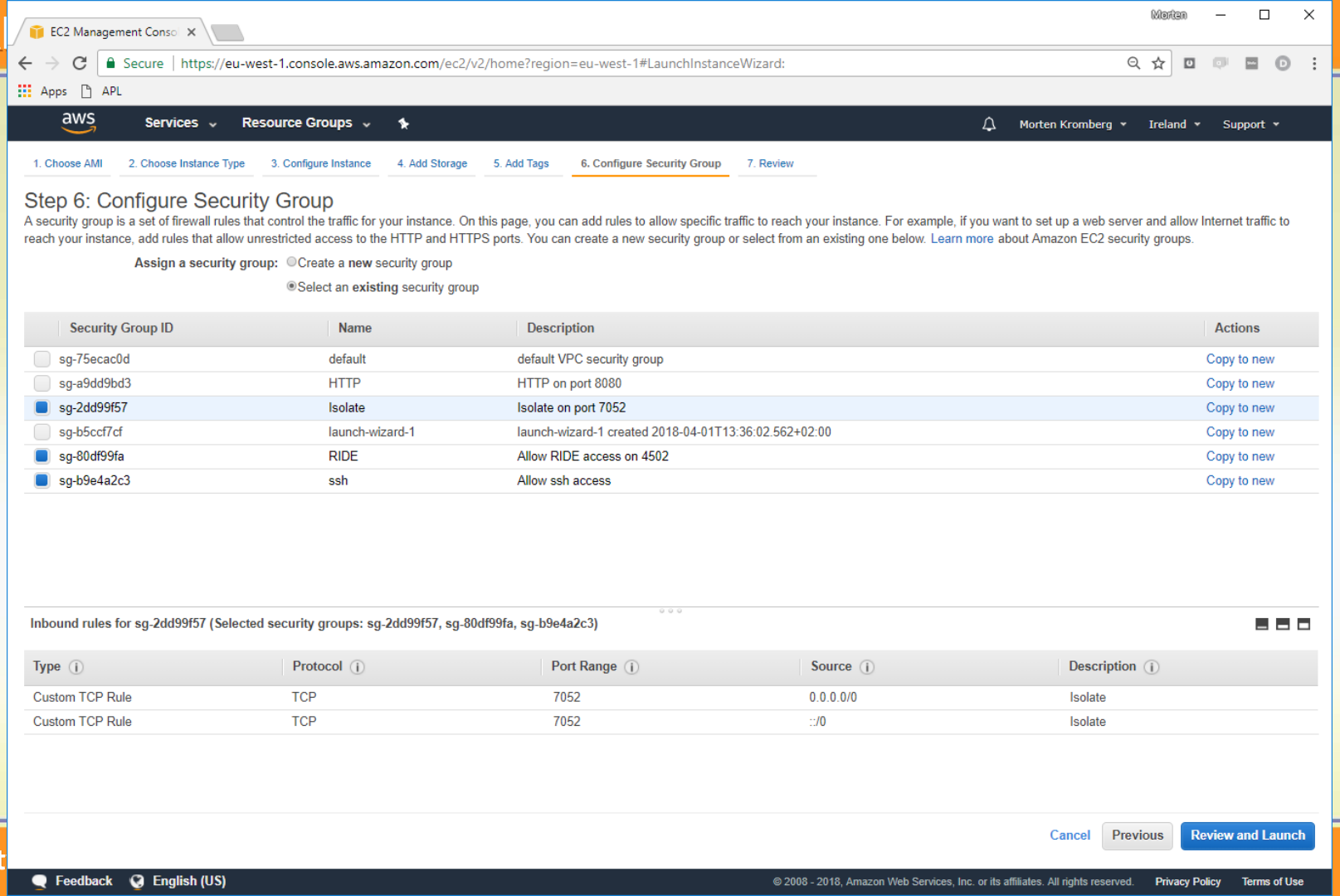
Edit storage

Tags

Edit tags

Cancel Previous Launch



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Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. Learn more about Amazon EC2 security groups.

Assign a security group: Create a **new** security group

Select an **existing** security group

Security Group ID	Name	Description	Actions
sg-75ecac0d	default	default VPC security group	Copy to new
sg-a9dd9bd3	HTTP	HTTP on port 8080	Copy to new
sg-2dd99f57	Isolate	Isolate on port 7052	Copy to new
sg-b5ccf7cf	launch-wizard-1	launch-wizard-1 created 2018-04-01T13:36:02.562+02:00	Copy to new
sg-80df99fa	RIDE	Allow RIDE access on 4502	Copy to new
sg-b9e4a2c3	ssh	Allow ssh access	Copy to new

Inbound rules for sg-2dd99f57 (Selected security groups: sg-2dd99f57, sg-80df99fa, sg-b9e4a2c3)

Type	Protocol	Port Range	Source	Description
Custom TCP Rule	TCP	7052	0.0.0.0/0	Isolate
Custom TCP Rule	TCP	7052	::/0	Isolate

Cancel Previous Review and Launch

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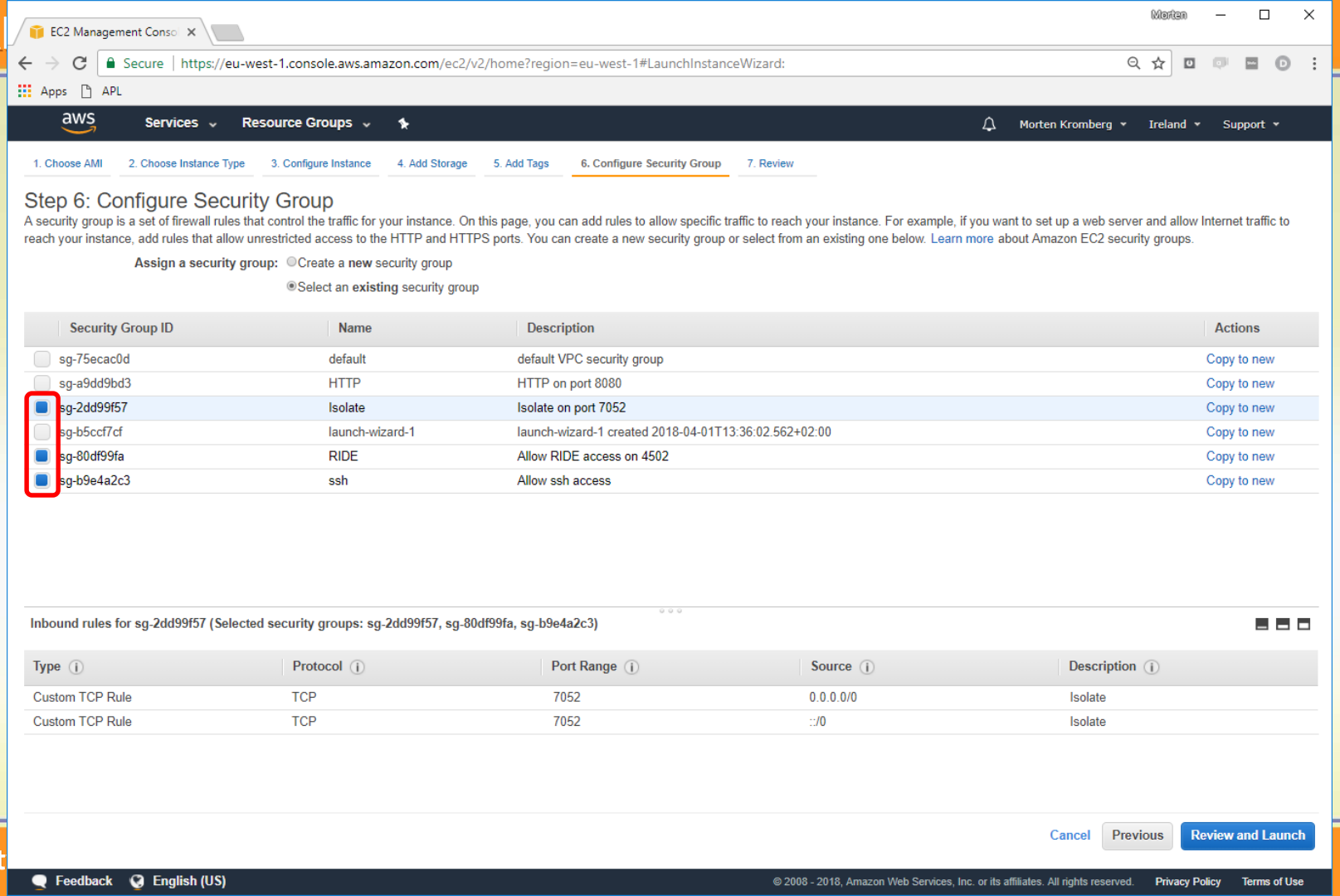
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Select an existing security group
Security Group ID | Name | Description | Actions
sg-75ecac0d | default | default VPC security group | Copy to new
sg-a9dd9bd3 | HTTP | HTTP on port 8080 | Copy to new
sg-2dd99f57 | Isolate | Isolate on port 7052 | Copy to new
sg-b5ccf7cf | launch-wizard-1 | launch-wizard-1 created 2018-04-01T13:36:02.562+02:00 | Copy to new
sg-80df99fa | RIDE | Allow RIDE access on 4502 | Copy to new
sg-b9e4a2c3 | ssh | Allow ssh access | Copy to new
Inbound rules for sg-2dd99f57 (Selected security groups: sg-2dd99f57, sg-80df99fa, sg-b9e4a2c3)
Type | Protocol | Port Range | Source | Description
Custom TCP Rule | TCP | 7052 | 0.0.0.0/0 | Isolate
Custom TCP Rule | TCP | 7052 | ::/0 | Isolate
Cancel Previous Review and Launch
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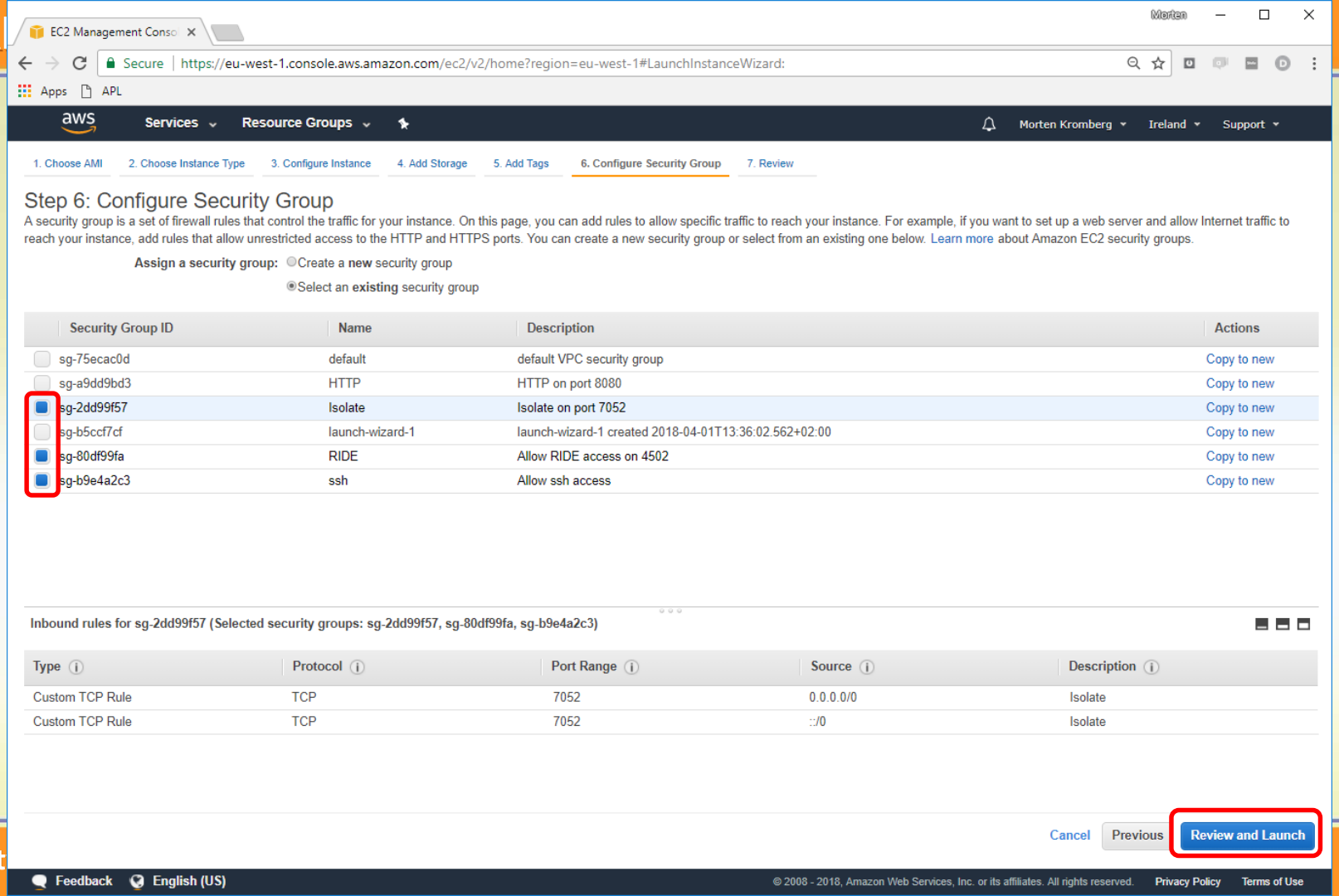
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Assign a security group: Create a new security group
Select an existing security group
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sg-b5ccf7cf | launch-wizard-1 | launch-wizard-1 created 2018-04-01T13:36:02.562+02:00 | Copy to new
sg-80df99fa | RIDE | Allow RIDE access on 4502 | Copy to new
sg-b9e4a2c3 | ssh | Allow ssh access | Copy to new
Inbound rules for sg-2dd99f57 (Selected security groups: sg-2dd99f57, sg-80df99fa, sg-b9e4a2c3)
Type | Protocol | Port Range | Source | Description
Custom TCP Rule | TCP | 7052 | 0.0.0.0/0 | Isolate
Custom TCP Rule | TCP | 7052 | ::/0 | Isolate
Cancel Previous Review and Launch
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1. Choose AMI | 2. Choose Instance Type | 3. Configure Instance | 4. Add Storage | 5. Add Tags | 6. Configure Security Group | 7. Review

Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

Improve your instances' security.

Your instances may be accessible from any IP address. We recommend that you update your security group rules to allow access from known IP addresses only.
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AMI Details

Edit AMI

Ubuntu Server 16.04 LTS (HVM), SSD Volume Type - ami-f90a4880

Free tier eligible

Ubuntu Server 16.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (http://www.ubuntu.com/cloud/services).

Root Device Type: ebs Virtualization type: hvm

Instance Type

Edit instance type

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	Variable	1	1	EBS only	-	Low to Moderate

Security Groups

Edit security groups

Security Group ID	Name	Description
sg-2dd99f57	Isolate	Isolate on port 7052
sg-80df99fa	RIDE	Allow RIDE access on 4502
sg-b9e4a2c3	ssh	Allow ssh access

All selected security groups inbound rules

Type	Protocol	Port Range	Source	Description

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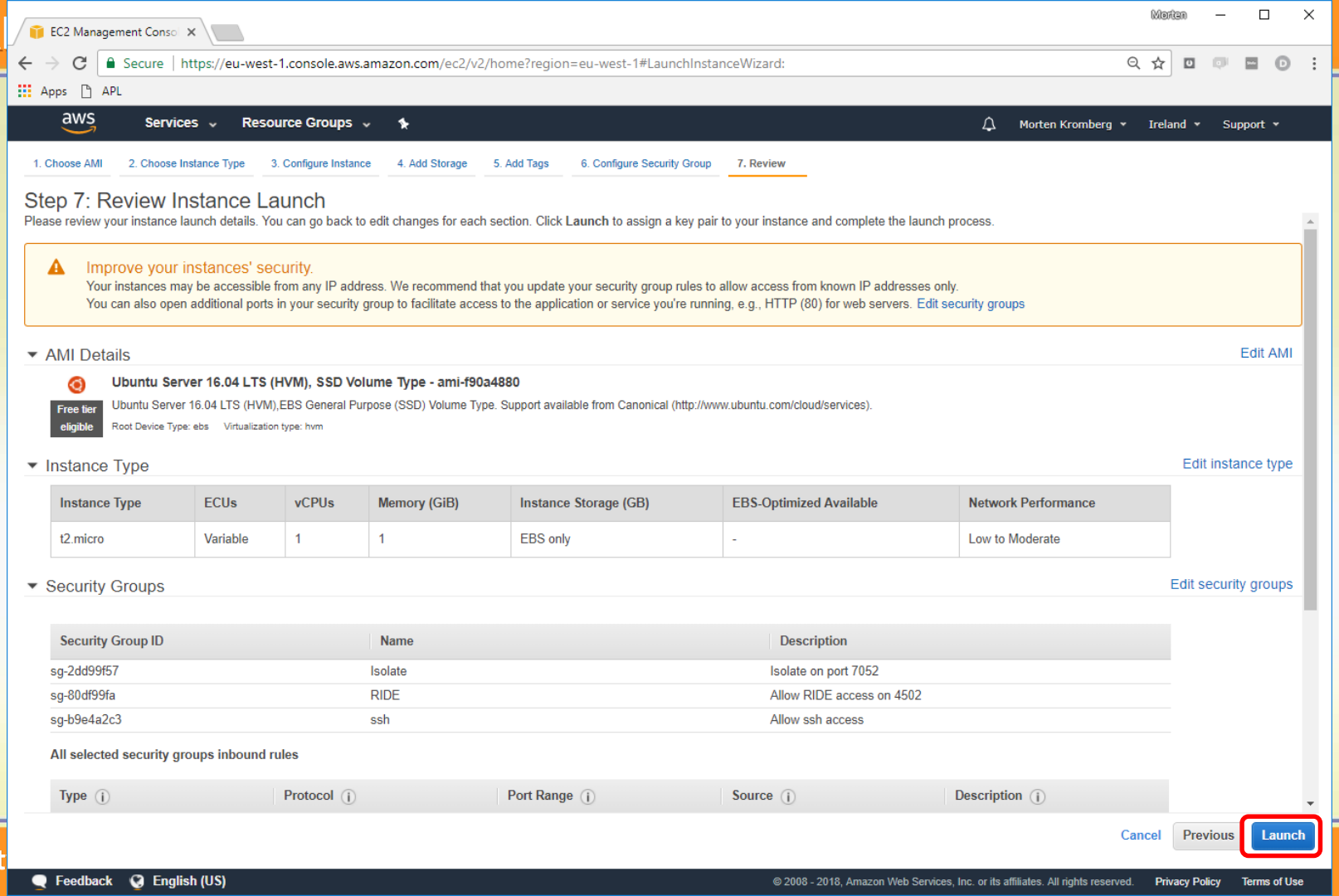

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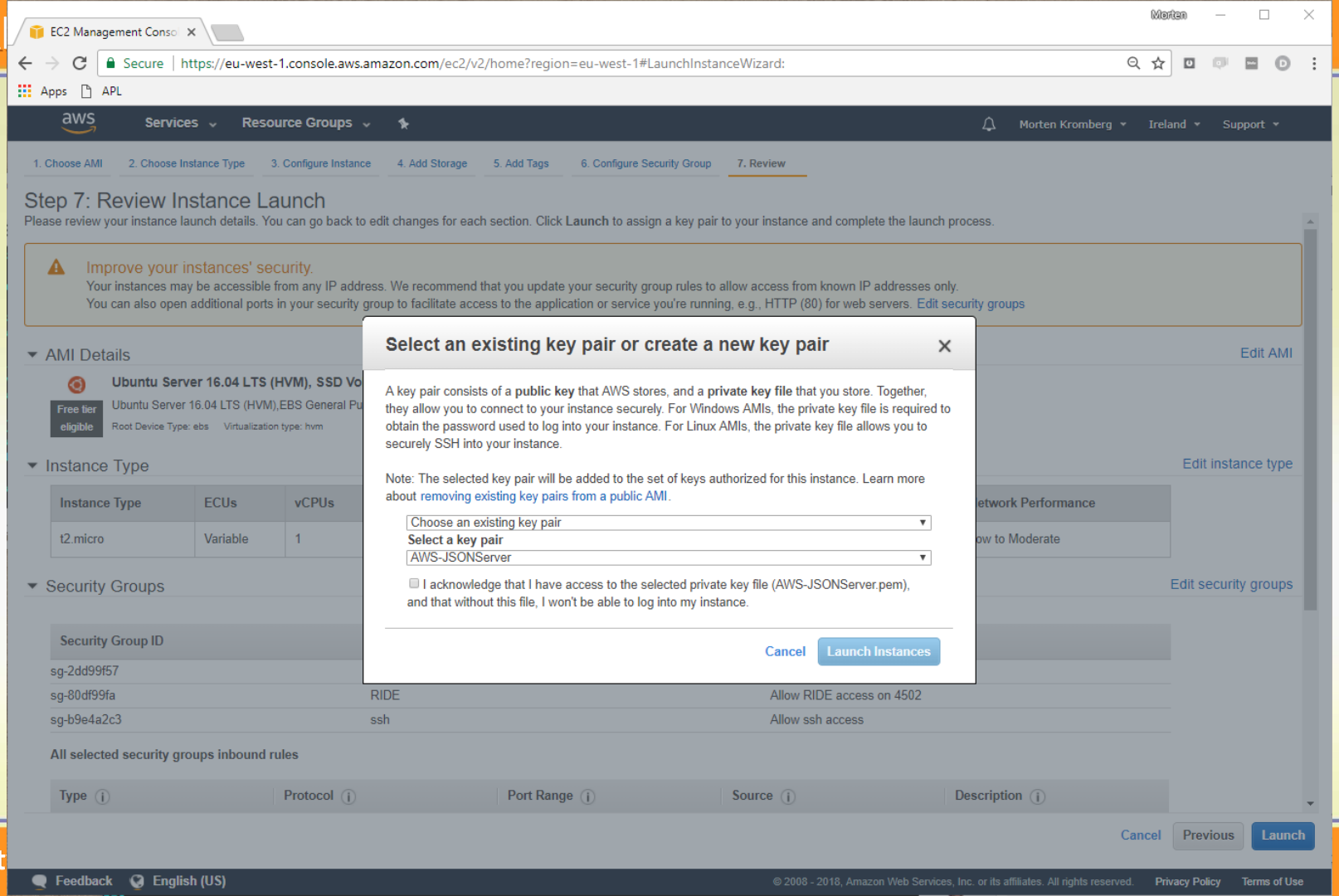
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aws Services Resource Groups Morten Kromberg Ireland Support
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Ubuntu Server 16.04 LTS (HVM), SSD Vo
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Ubuntu Server 16.04 LTS (HVM),EBS General Pu
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sg-2dd99f57
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Type Protocol Port Range Source Description
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Feedback English (US)
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Select an existing key pair or create a new key pair
A key pair consists of a public key that AWS stores, and a private key file that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance.
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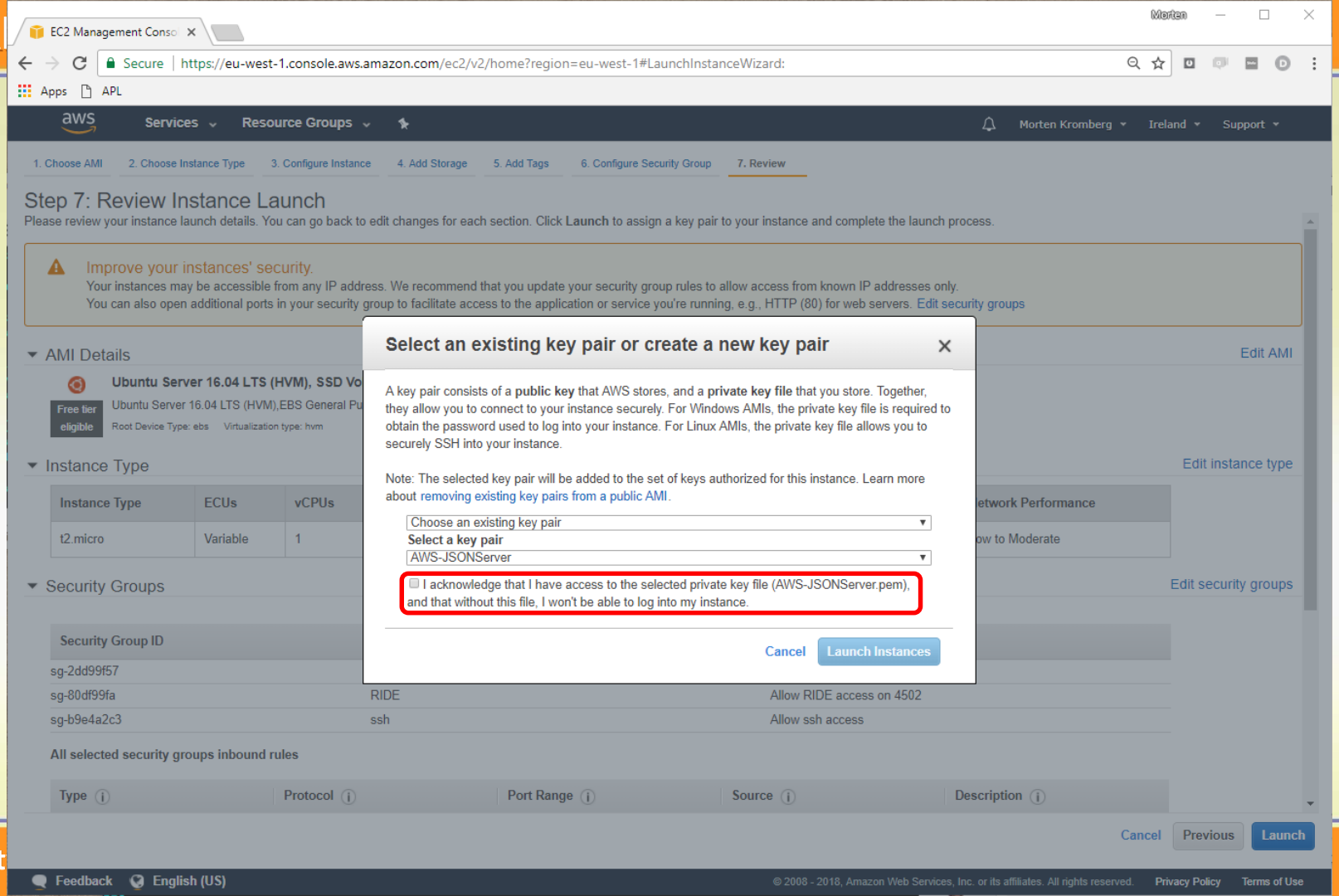
AWS-JSONServer
I acknowledge that I have access to the selected private key file (AWS-JSONServer.pem), and that without this file, I won't be able to log into my instance.
Cancel Launch Instances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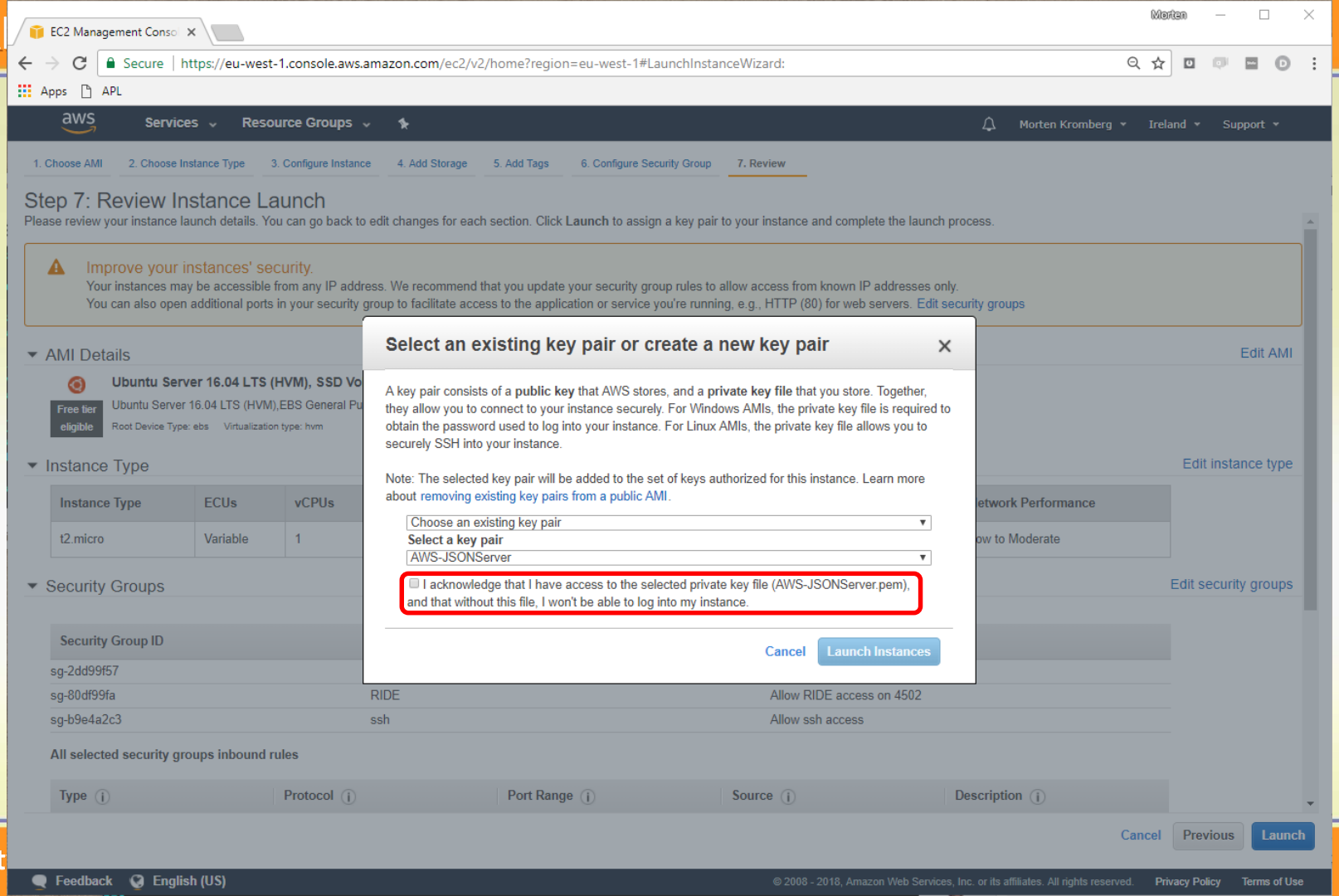
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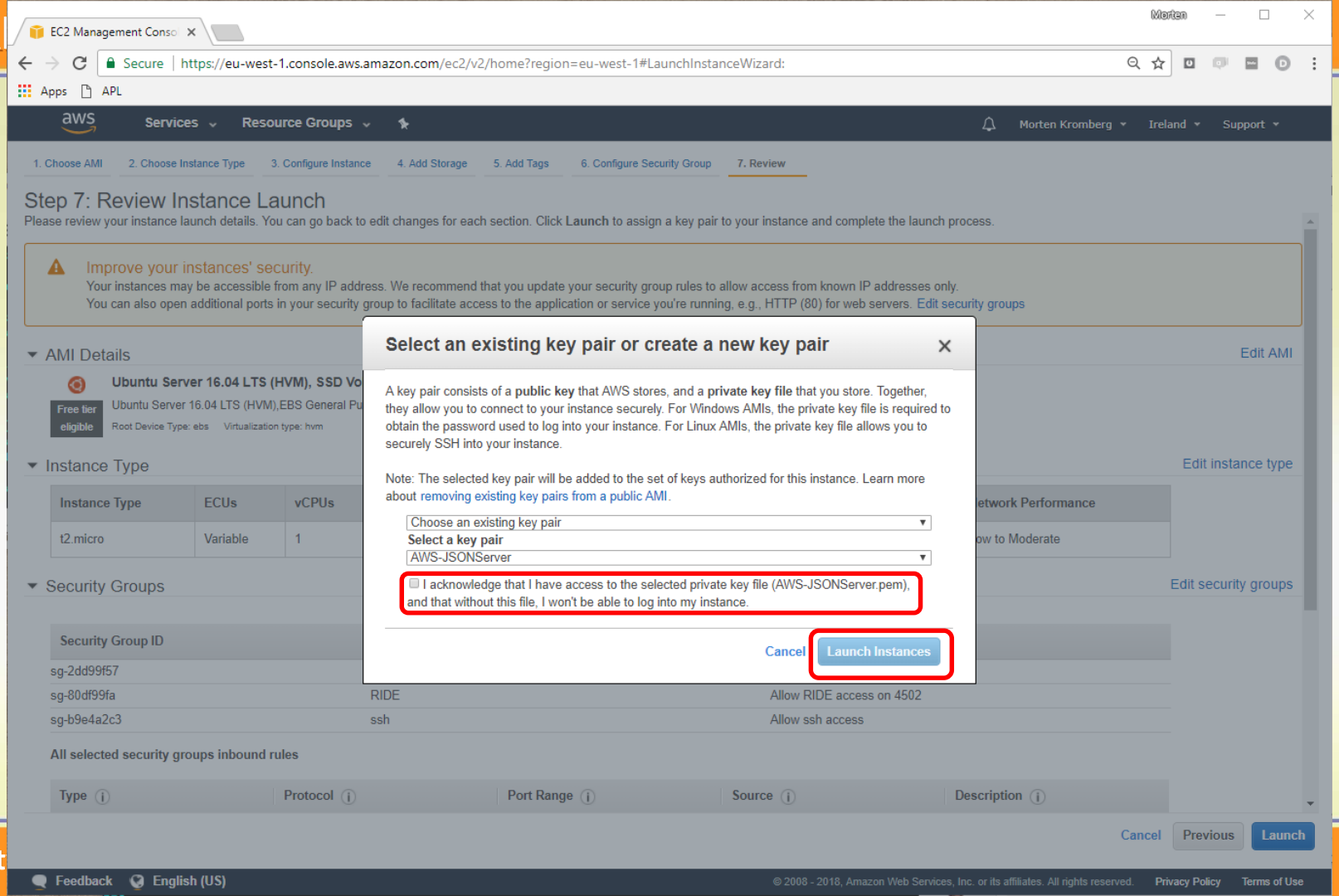
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sg-80df99fa RIDE Allow RIDE access on 4502
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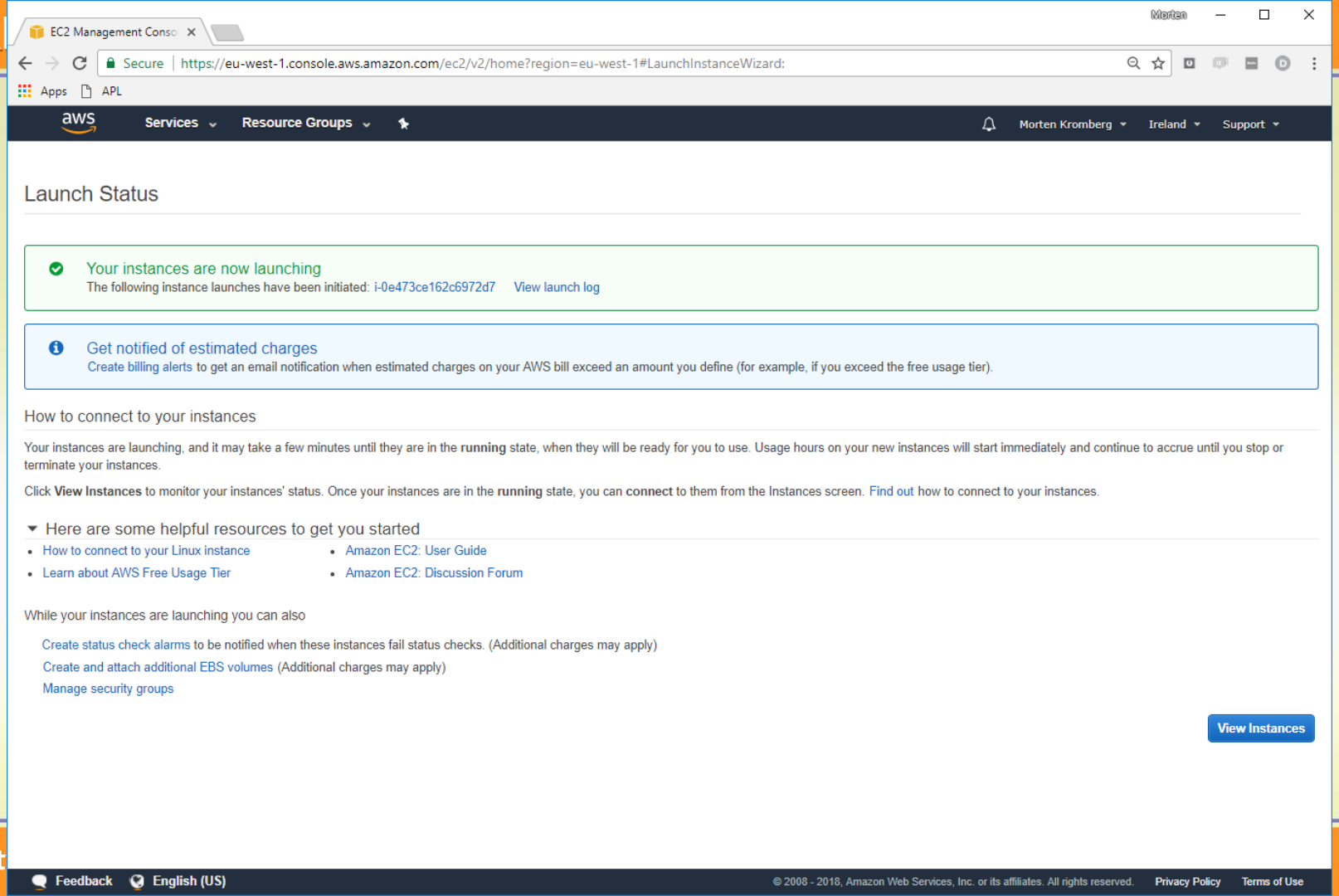
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Resource Groups
Morten Kromberg
Ireland
Support
Launch Status
Your instances are now launching
The following instance launches have been initiated: i-0e473ce162c6972d7
View launch log
Get notified of estimated charges
Create billing alerts to get an email notification when estimated charges on your AWS bill exceed an amount you define (for example, if you exceed the free usage tier).
How to connect to your instances
Your instances are launching, and it may take a few minutes until they are in the running state, when they will be ready for you to use. Usage hours on your new instances will start immediately and continue to accrue until you stop or terminate your instances.
Click View Instances to monitor your instances' status. Once your instances are in the running state, you can connect to them from the Instances screen. Find out how to connect to your instances.
Here are some helpful resources to get you started
How to connect to your Linux instance
Learn about AWS Free Usage Tier
Amazon EC2: User Guide
Amazon EC2: Discussion Forum
While your instances are launching you can also
Create status check alarms to be notified when these instances fail status checks. (Additional charges may apply)
Create and attach additional EBS volumes (Additional charges may apply)
Manage security groups
View Instances
Feedback
English (US)
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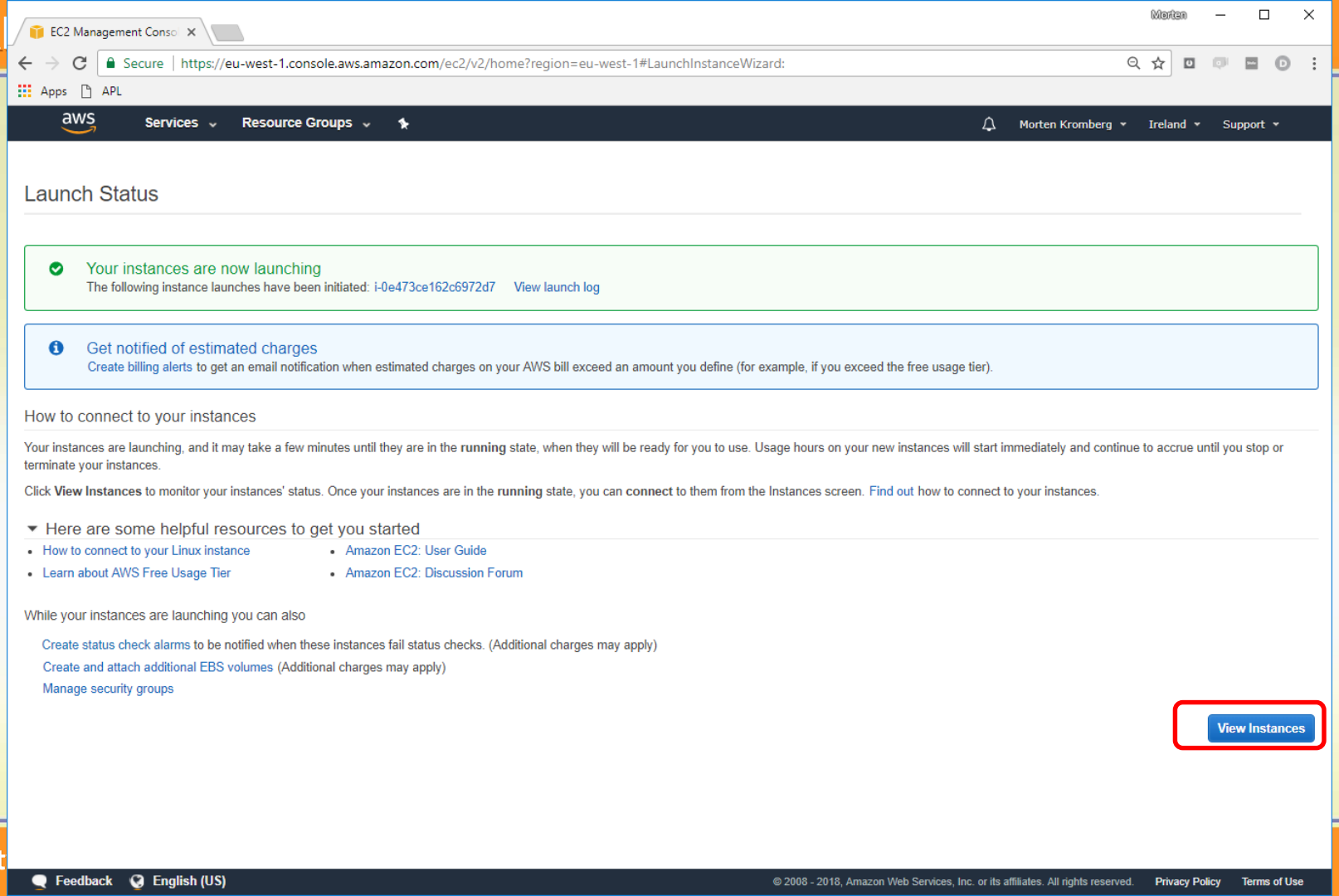
EC2 Management Conso
Morten
Secure
https://eu-west-1.console.aws.amazon.com/ec2/v2/home?region=eu-west-1#LaunchInstanceWizard:
Apps
APL
aws
Services
Resource Groups
Morten Kromberg
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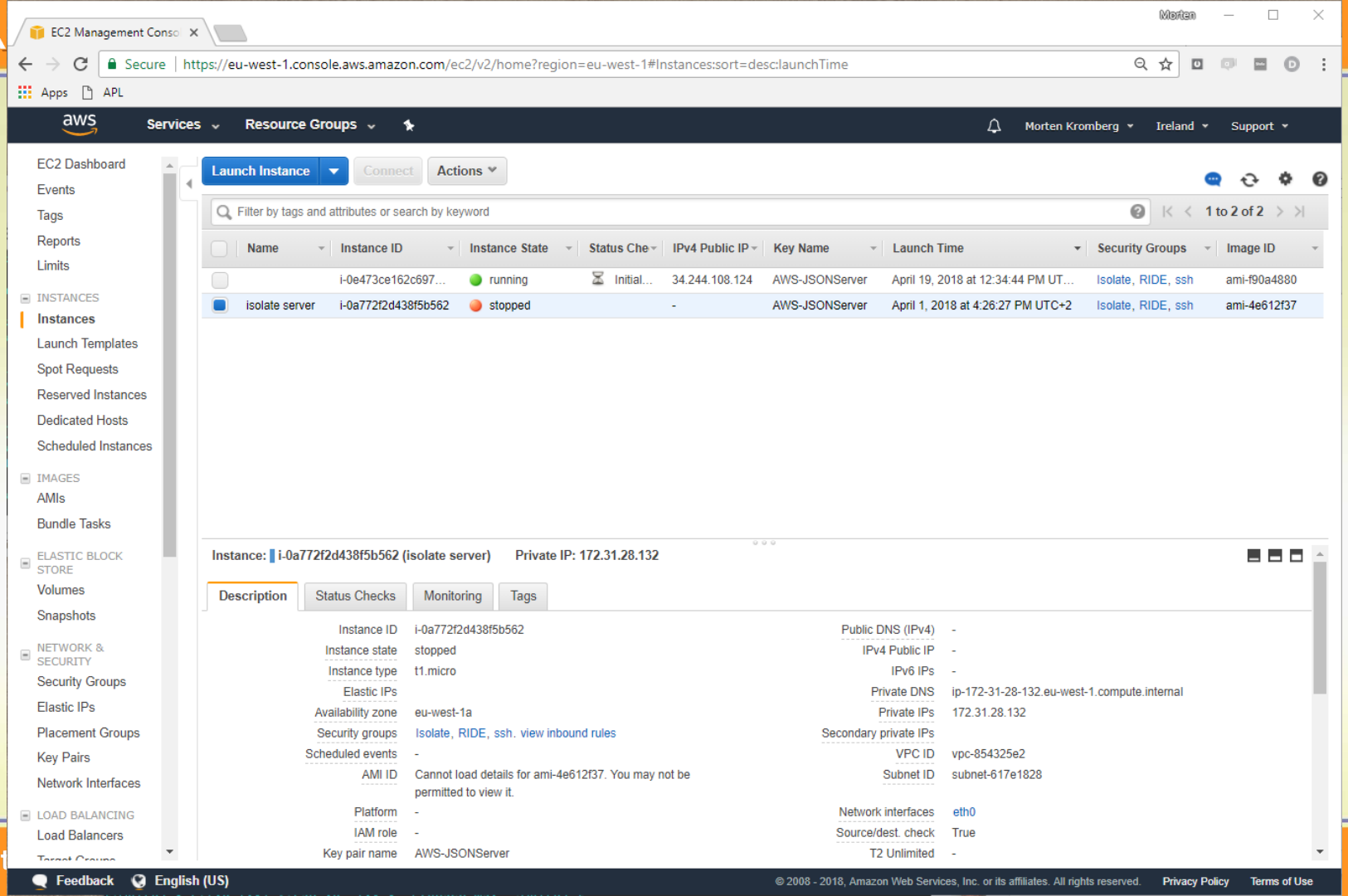
EC2 Management Conso
Morten
Secure https://eu-west-1.console.aws.amazon.com/ec2/v2/home?region=eu-west-1#Instances:sort=desc:launchTime
Apps APL
aws Services Resource Groups Morten Kromberg Ireland Support
EC2 Dashboard
Events
Tags
Reports
Limits
INSTANCES
Instances
Launch Templates
Spot Requests
Reserved Instances
Dedicated Hosts
Scheduled Instances
IMAGES
AMIs
Bundle Tasks
ELASTIC BLOCK STORE
Volumes
Snapshots
NETWORK & SECURITY
Security Groups
Elastic IPs
Placement Groups
Key Pairs
Network Interfaces
LOAD BALANCING
Load Balancers
Launch Instance
Connect
Actions
Filter by tags and attributes or search by keyword
1 to 2 of 2
Name
Instance ID
Instance State
Status Che
IPv4 Public IP
Key Name
Launch Time
Security Groups
Image ID
i-0e473ce162c697...
running
Initial...
34.244.108.124
AWS-JSONServer
April 19, 2018 at 12:34:44 PM UT...
Isolate, RIDE, ssh
ami-f90a4880
isolate server
i-0a772f2d438f5b562
stopped
-
AWS-JSONServer
April 1, 2018 at 4:26:27 PM UTC+2
Isolate, RIDE, ssh
ami-4e612f37
Instance: i-0a772f2d438f5b562 (isolate server)
Private IP: 172.31.28.132
Description
Status Checks
Monitoring
Tags
Instance ID i-0a772f2d438f5b562
Instance state stopped
Instance type t1.micro
Elastic IPs
Availability zone eu-west-1a
Security groups Isolate, RIDE, ssh. view inbound rules
Scheduled events -
AMI ID Cannot load details for ami-4e612f37. You may not be permitted to view it.
Platform -
IAM role -
Key pair name AWS-JSONServer
Public DNS (IPv4) -
IPv4 Public IP -
IPv6 IPs -
Private DNS ip-172-31-28-132.eu-west-1.compute.internal
Private IPs 172.31.28.132
Secondary private IPs
VPC ID vpc-854325e2
Subnet ID subnet-617e1828
Network interfaces eth0
Source/dest. check True
T2 Unlimited -
Feedback English (US)
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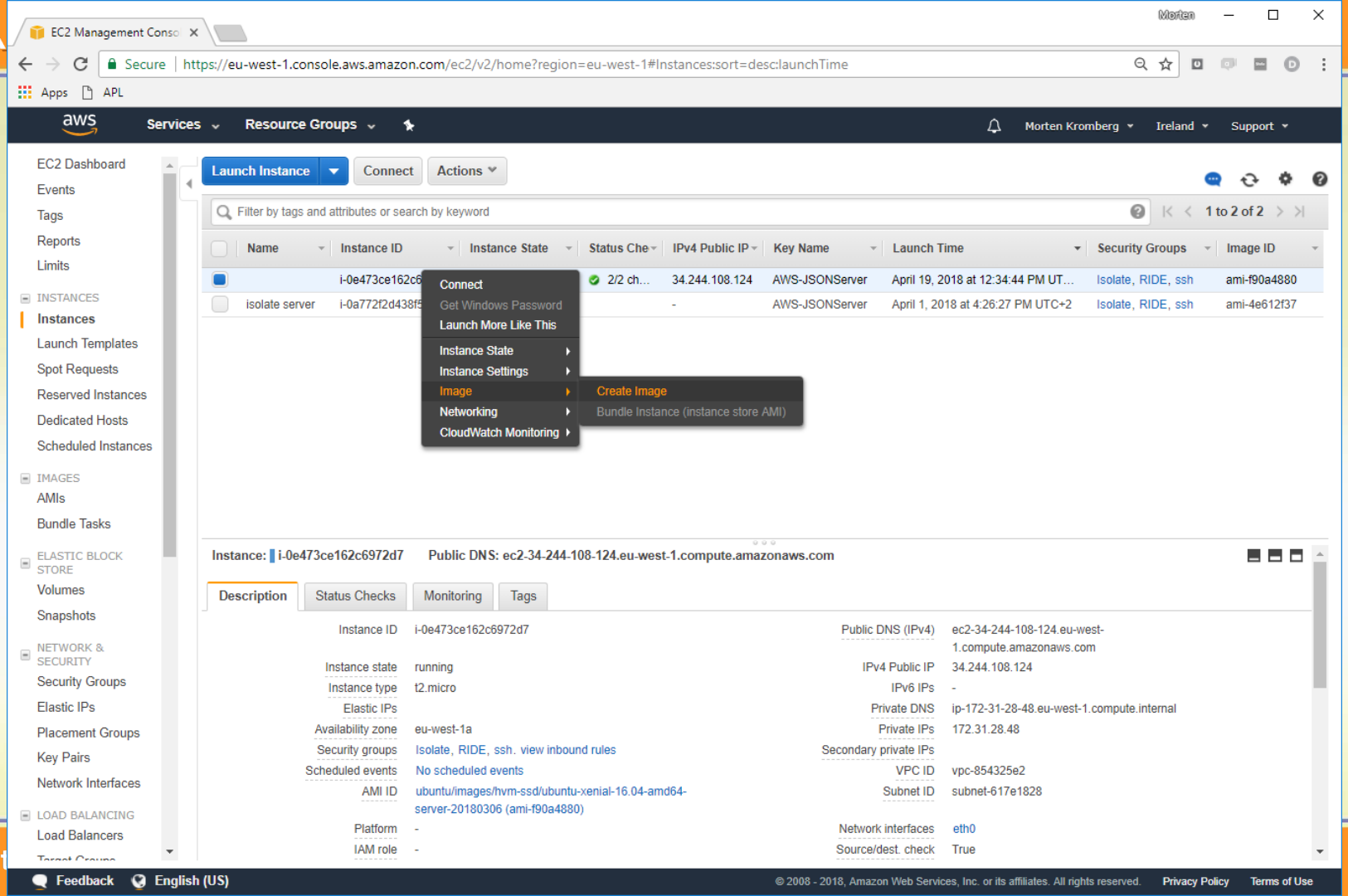
EC2 Management Conso
Morten
Secure https://eu-west-1.console.aws.amazon.com/ec2/v2/home?region=eu-west-1#Instances:sort=desc:launchTime
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1 to 2 of 2
Name
Instance ID
Instance State
Status Che
IPv4 Public IP
Key Name
Launch Time
Security Groups
Image ID
i-0e473ce162c6
2/2 ch...
34.244.108.124
AWS-JSONServer
April 19, 2018 at 12:34:44 PM UT...
Isolate, RIDE, ssh
ami-f90a4880
isolate server
i-0a772f2d438f5
-
AWS-JSONServer
April 1, 2018 at 4:26:27 PM UTC+2
Isolate, RIDE, ssh
ami-4e612f37
Connect
Get Windows Password
Launch More Like This
Instance State
Instance Settings
Image
Networking
CloudWatch Monitoring
Create Image
Bundle Instance (instance store AMI)
Instance: i-0e473ce162c6972d7
Public DNS: ec2-34-244-108-124.eu-west-1.compute.amazonaws.com
Description
Status Checks
Monitoring
Tags
Instance ID i-0e473ce162c6972d7
Instance state running
Instance type t2.micro
Elastic IPs
Availability zone eu-west-1a
Security groups Isolate, RIDE, ssh. view inbound rules
Scheduled events No scheduled events
AMI ID ubuntu/images/hvm-ssd/ubuntu-xenial-16.04-amd64-server-20180306 (ami-f90a4880)
Platform -
IAM role -
Public DNS (IPv4) ec2-34-244-108-124.eu-west-1.compute.amazonaws.com
IPv4 Public IP 34.244.108.124
IPv6 IPs -
Private DNS ip-172-31-28-48.eu-west-1.compute.internal
Private IPs 172.31.28.48
Secondary private IPs
VPC ID vpc-854325e2
Subnet ID subnet-617e1828
Network interfaces eth0
Source/dest. check True
Feedback English (US)
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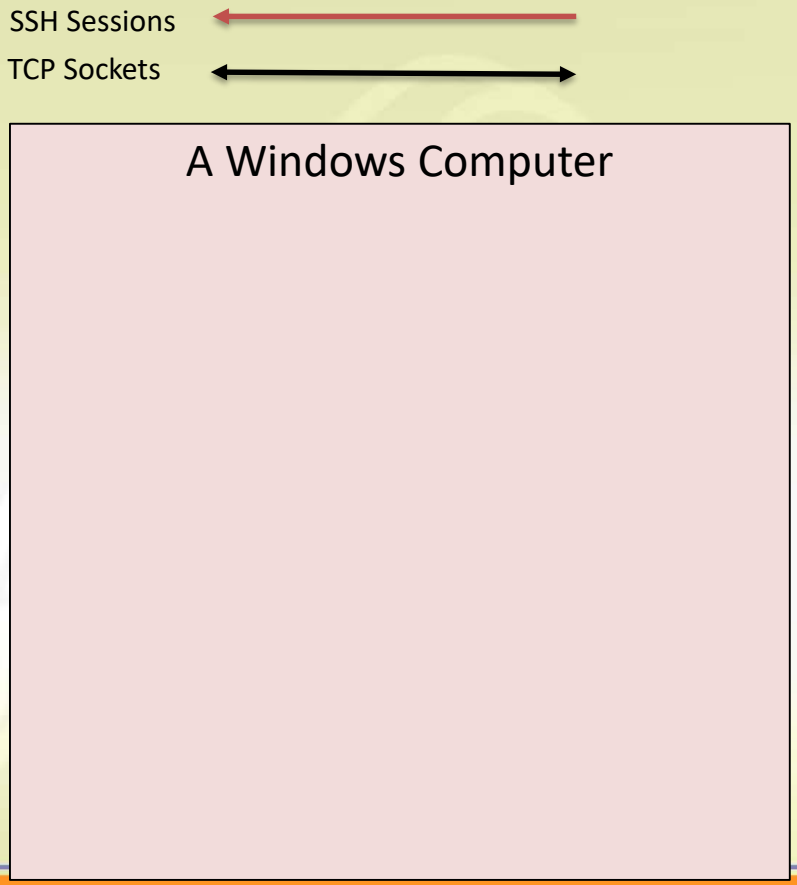
Agenda

- Quick introduction to isolates
- Building and launching a Linux VM with Dyalog APL on the Amazon Elastic Compute Cloud (EC2)
- Starting 20 VM's and using them as isolate servers
- A quick demo of ll.EachX

Isolates in the Cloud

Isolates in the Cloud



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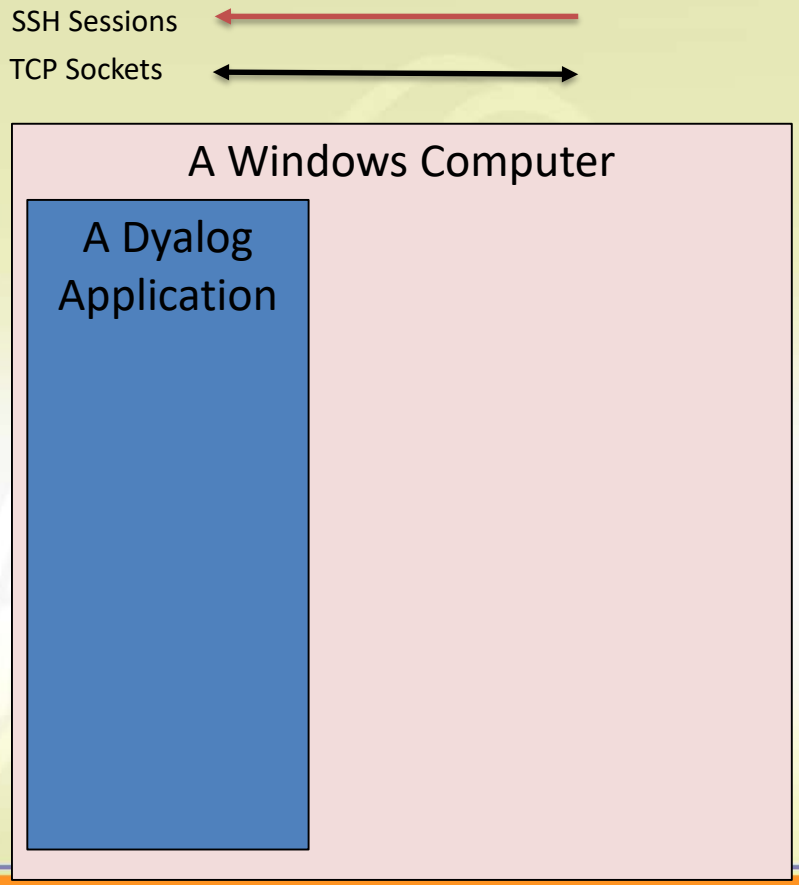

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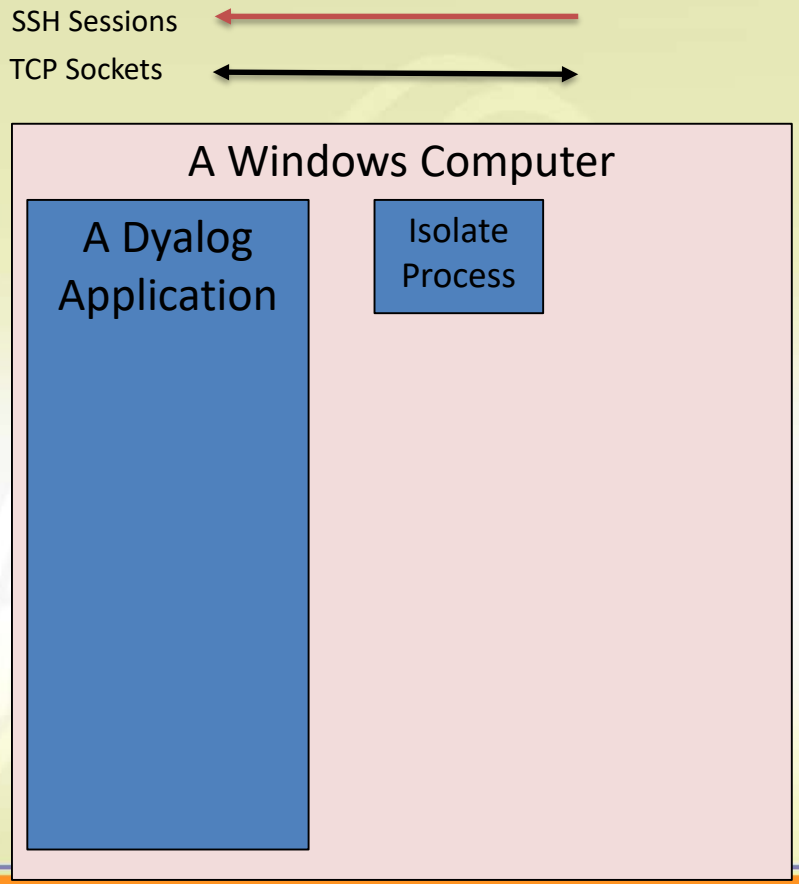

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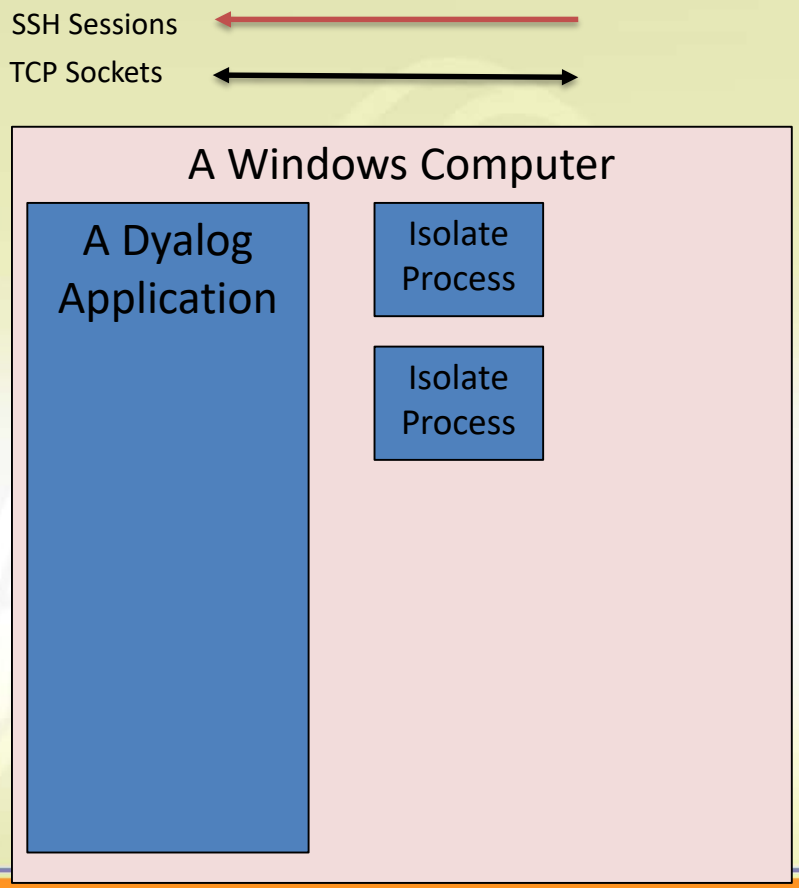

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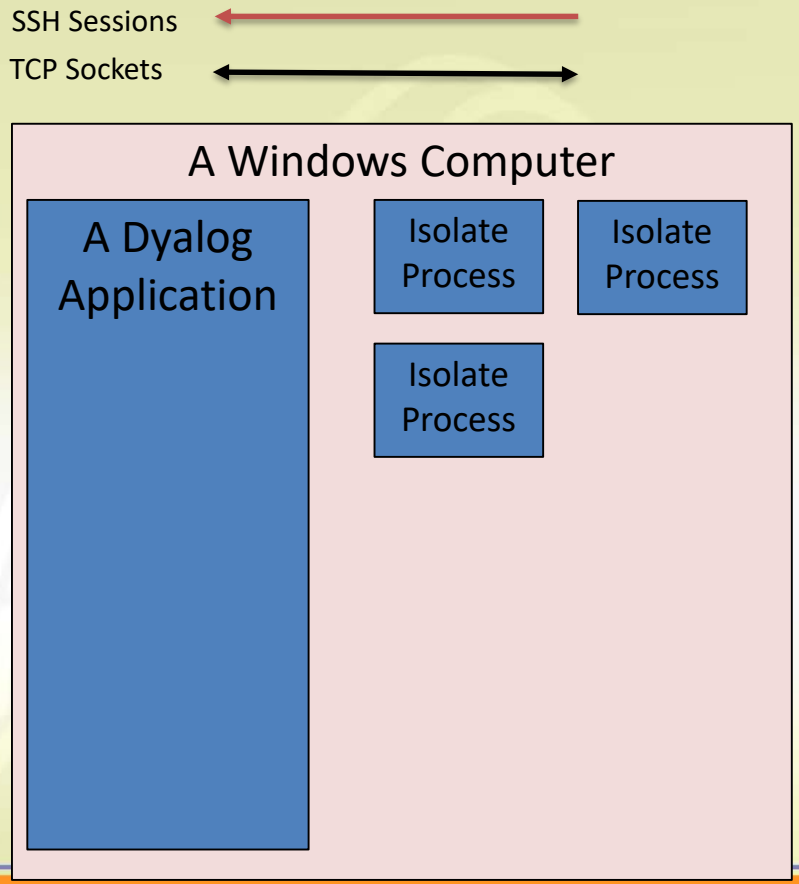

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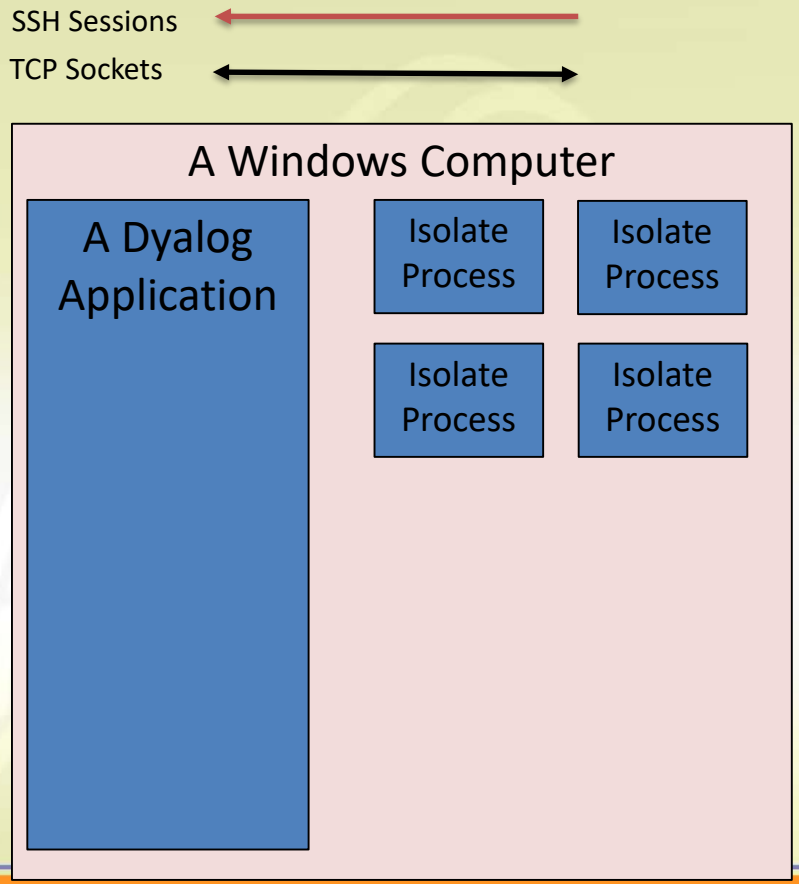

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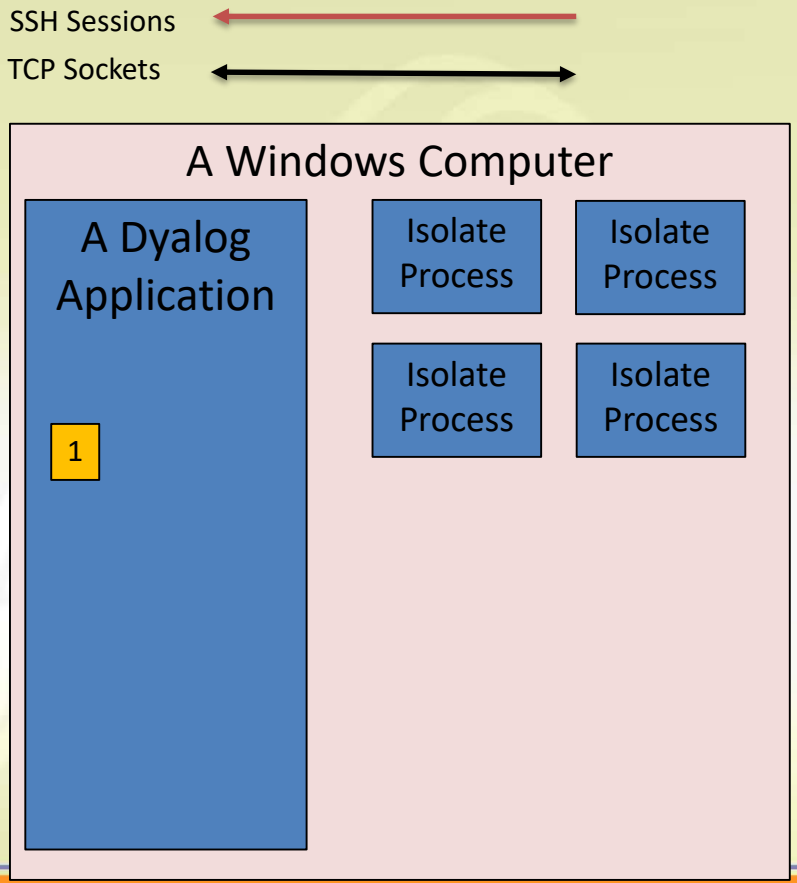

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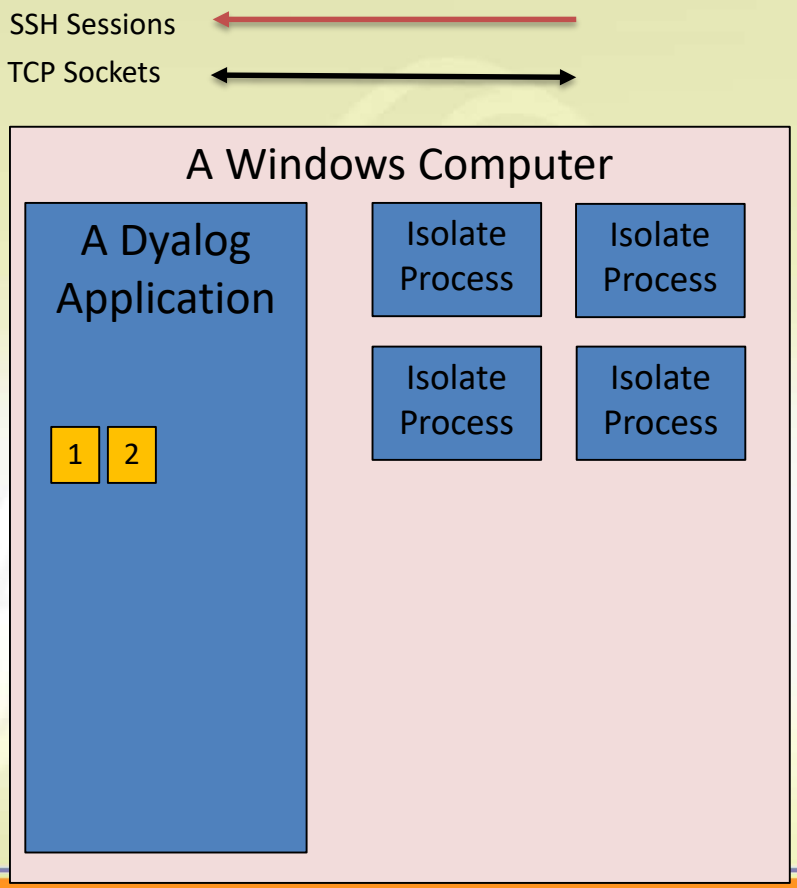

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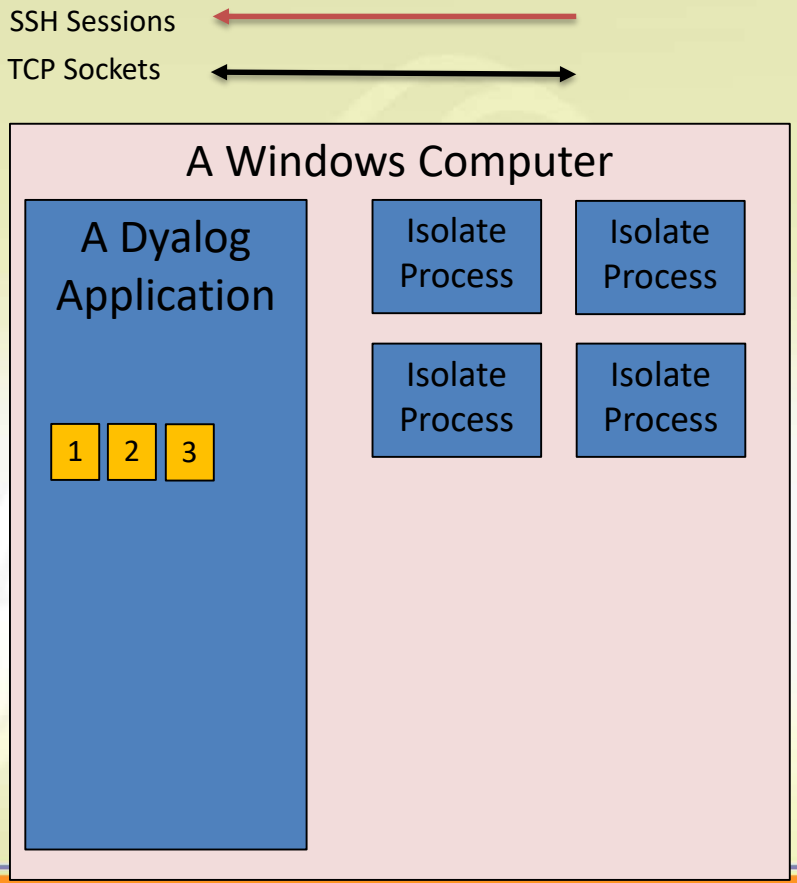

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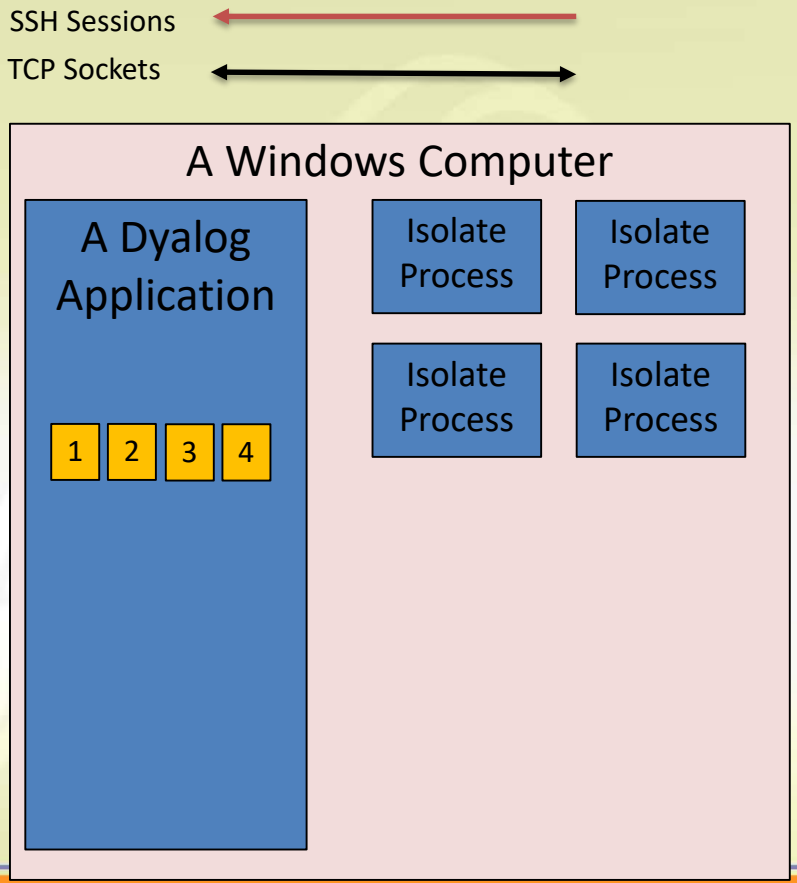

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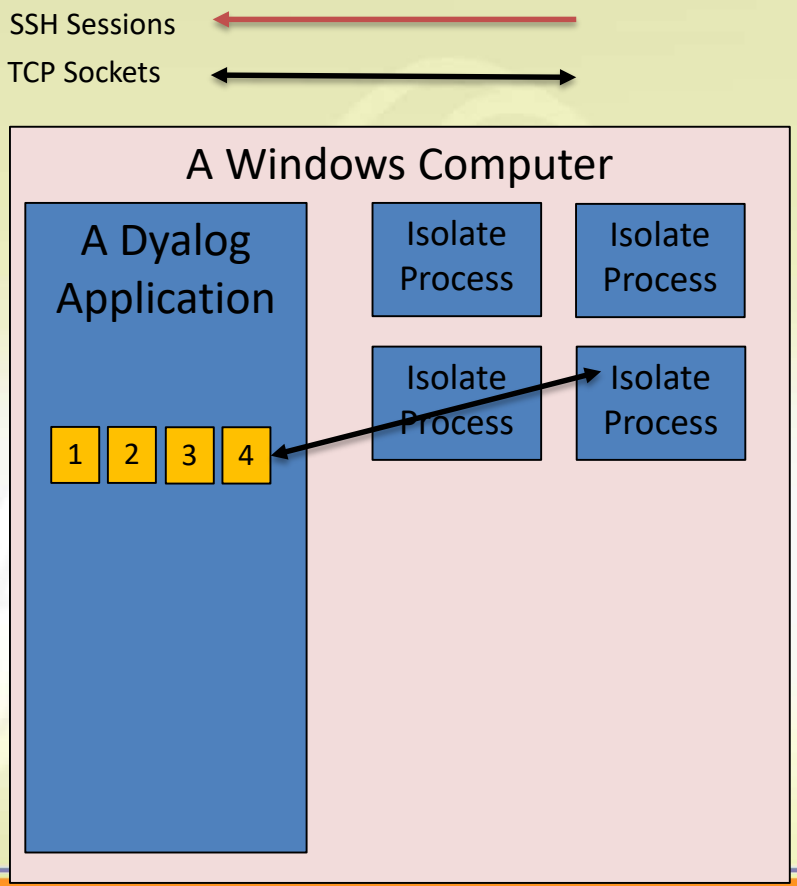

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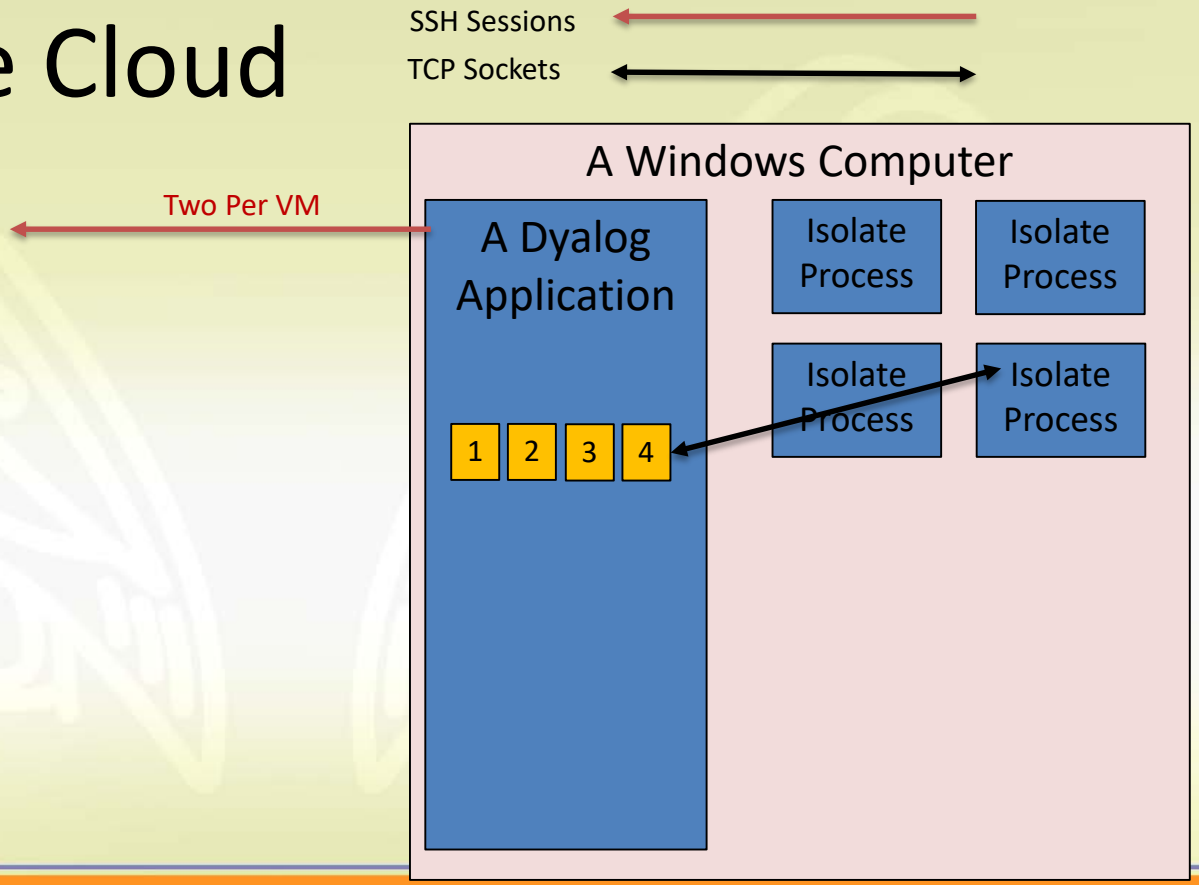

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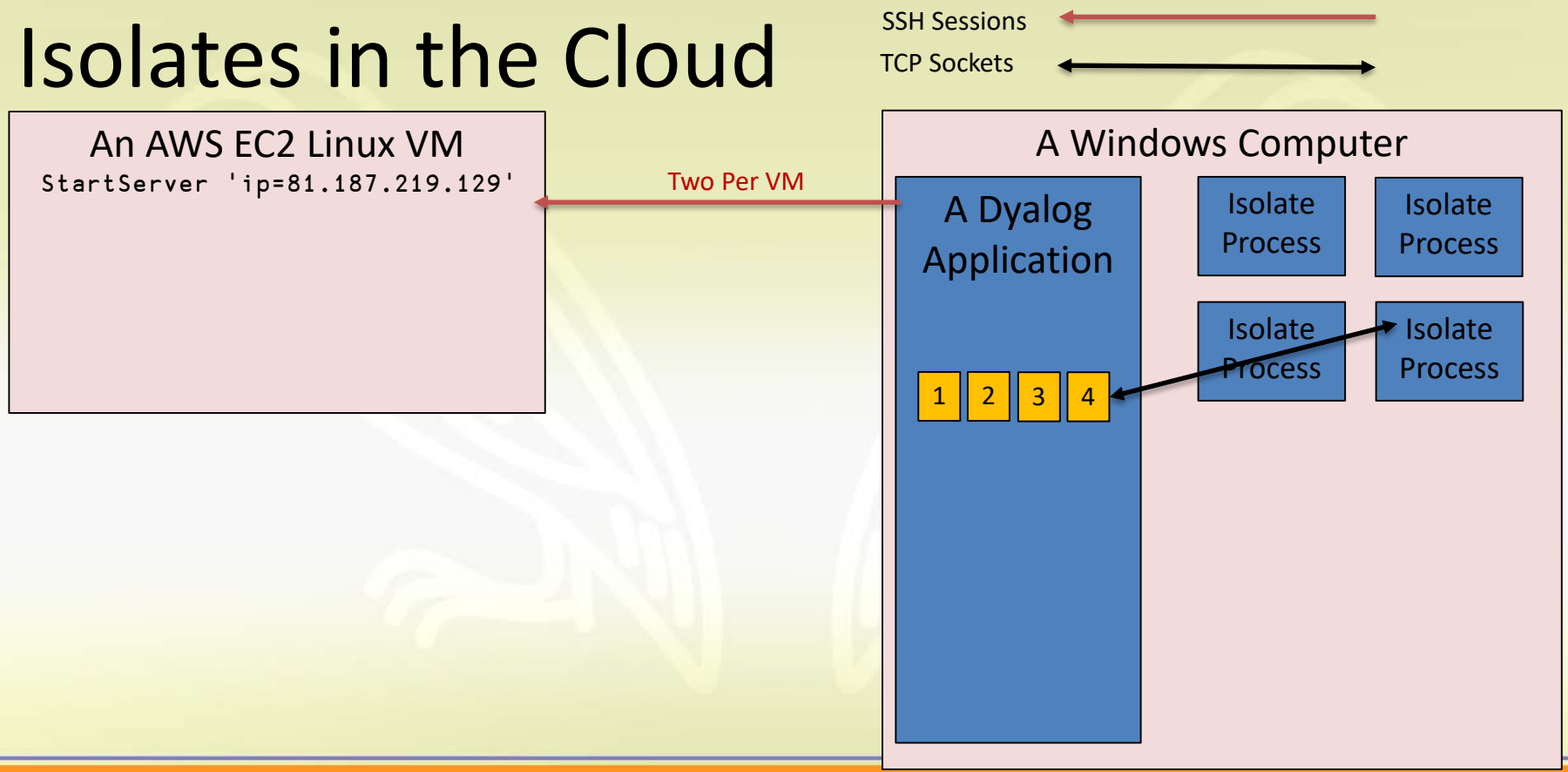

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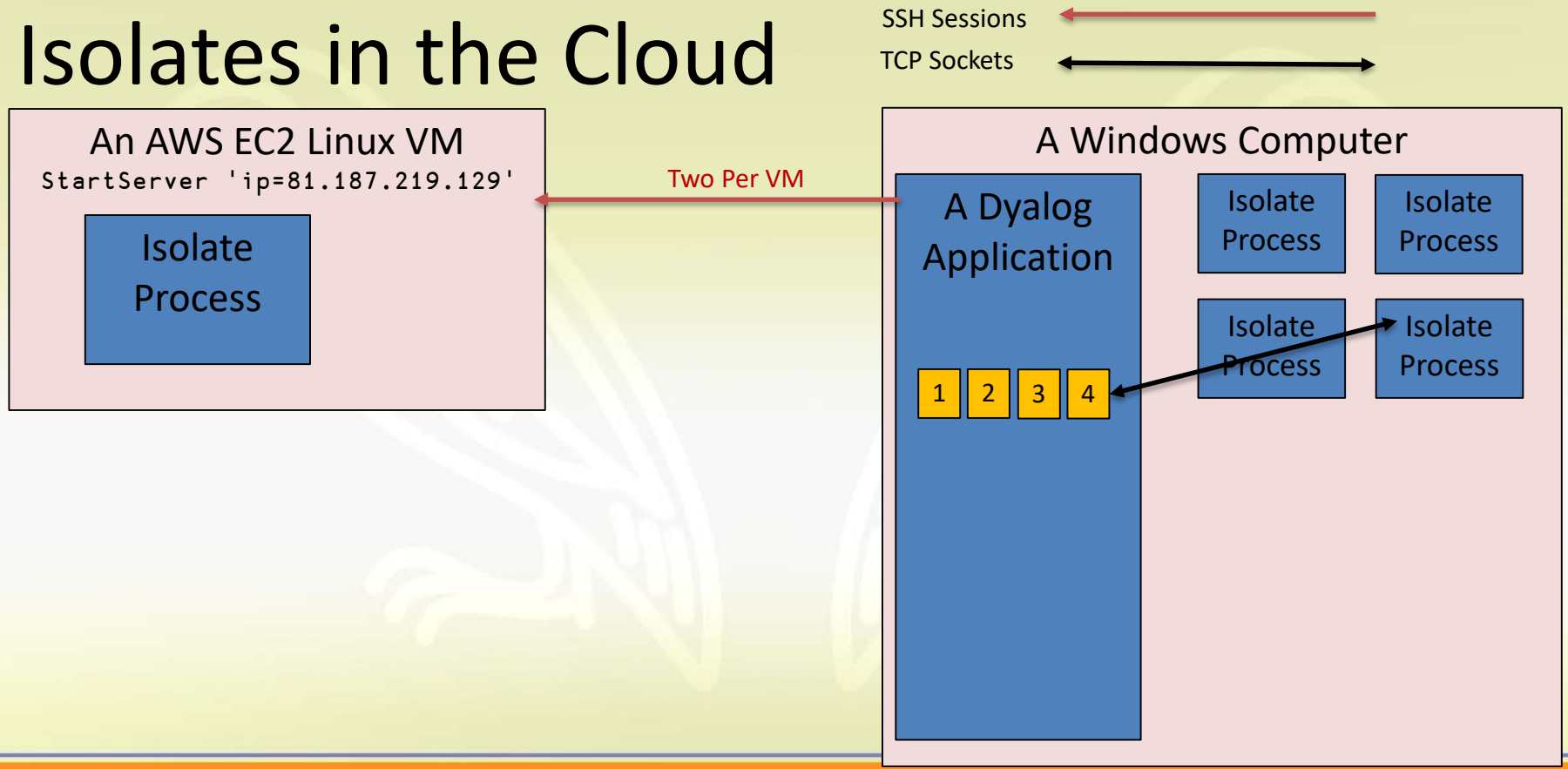

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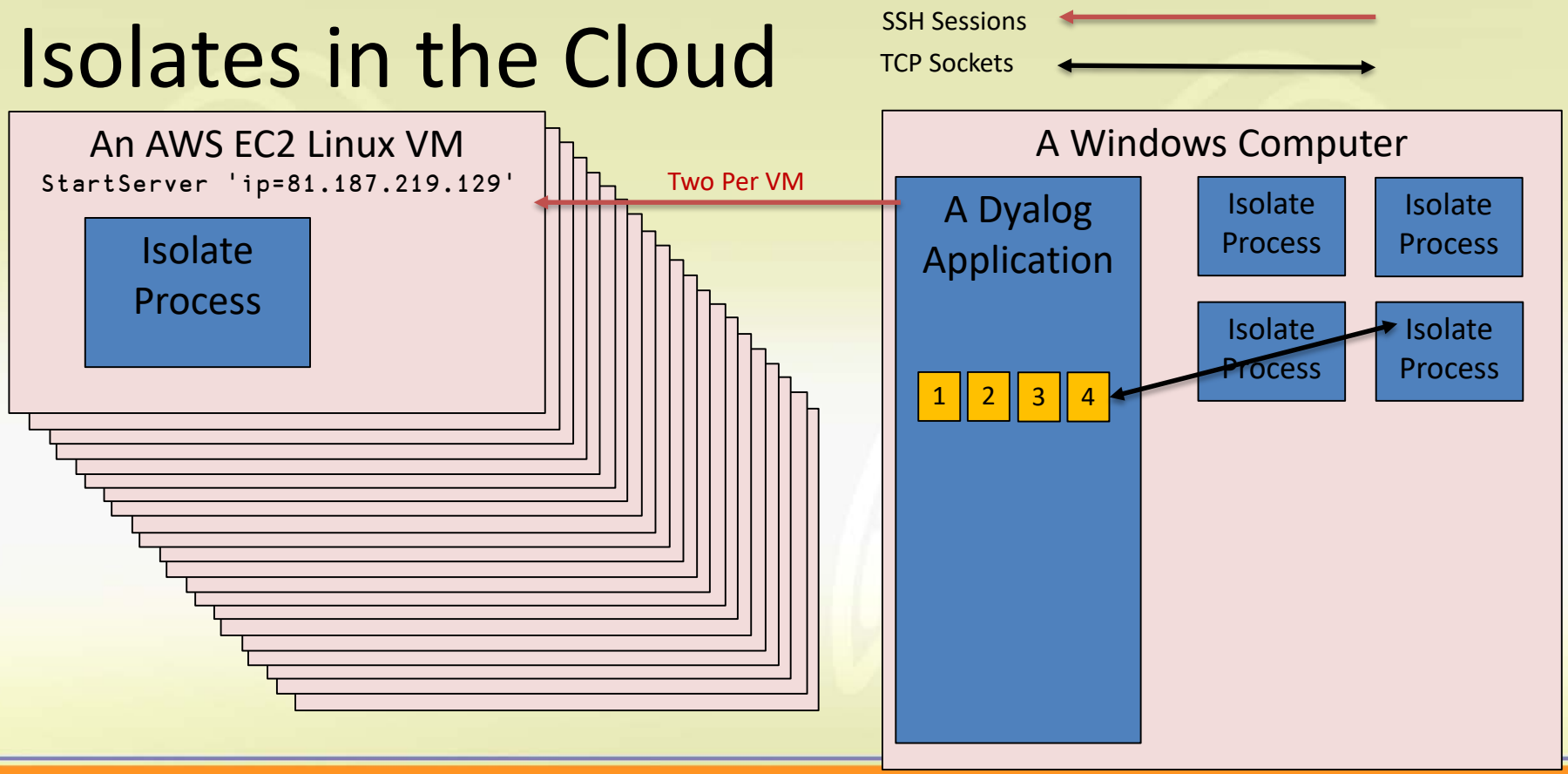
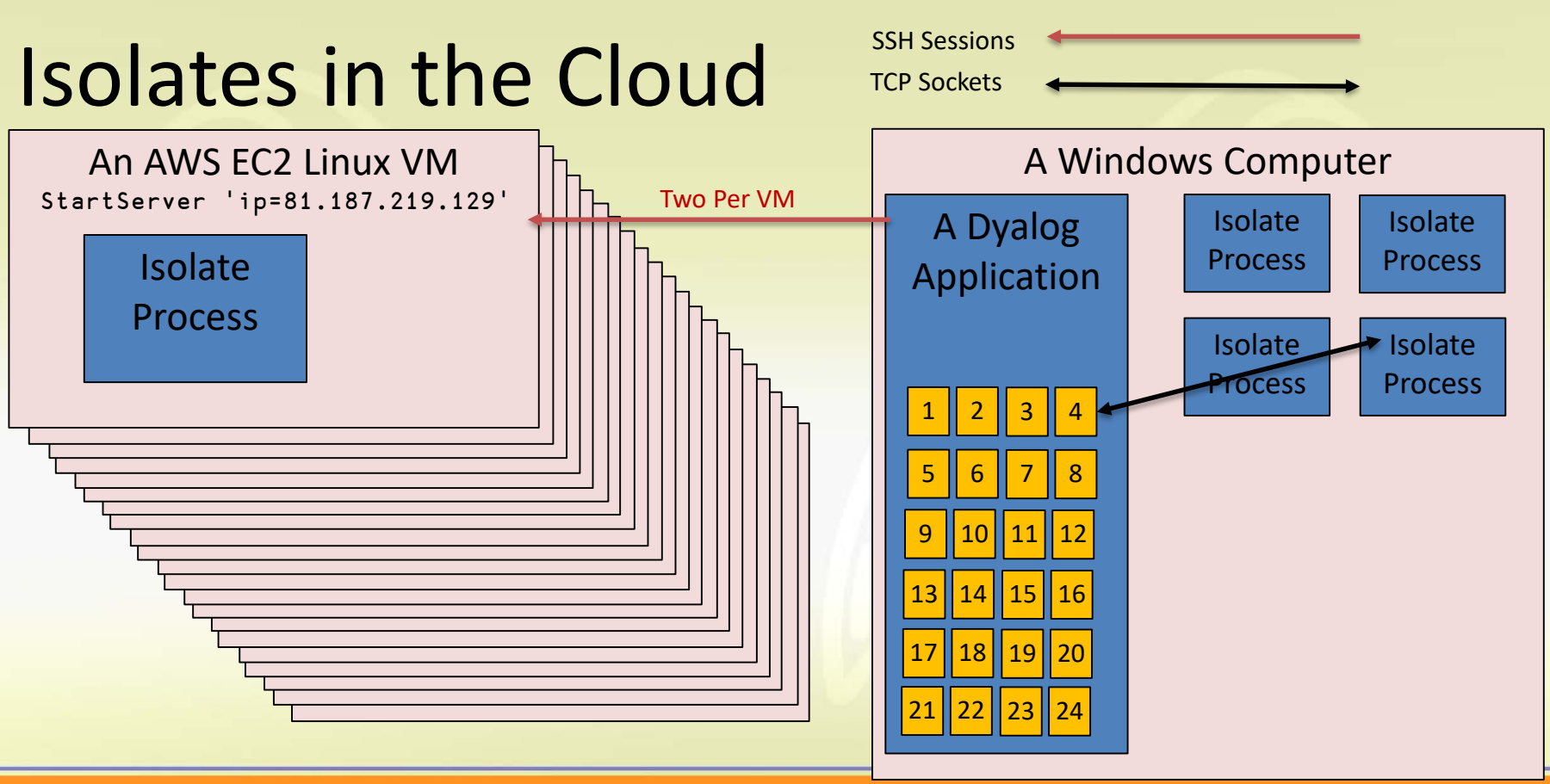
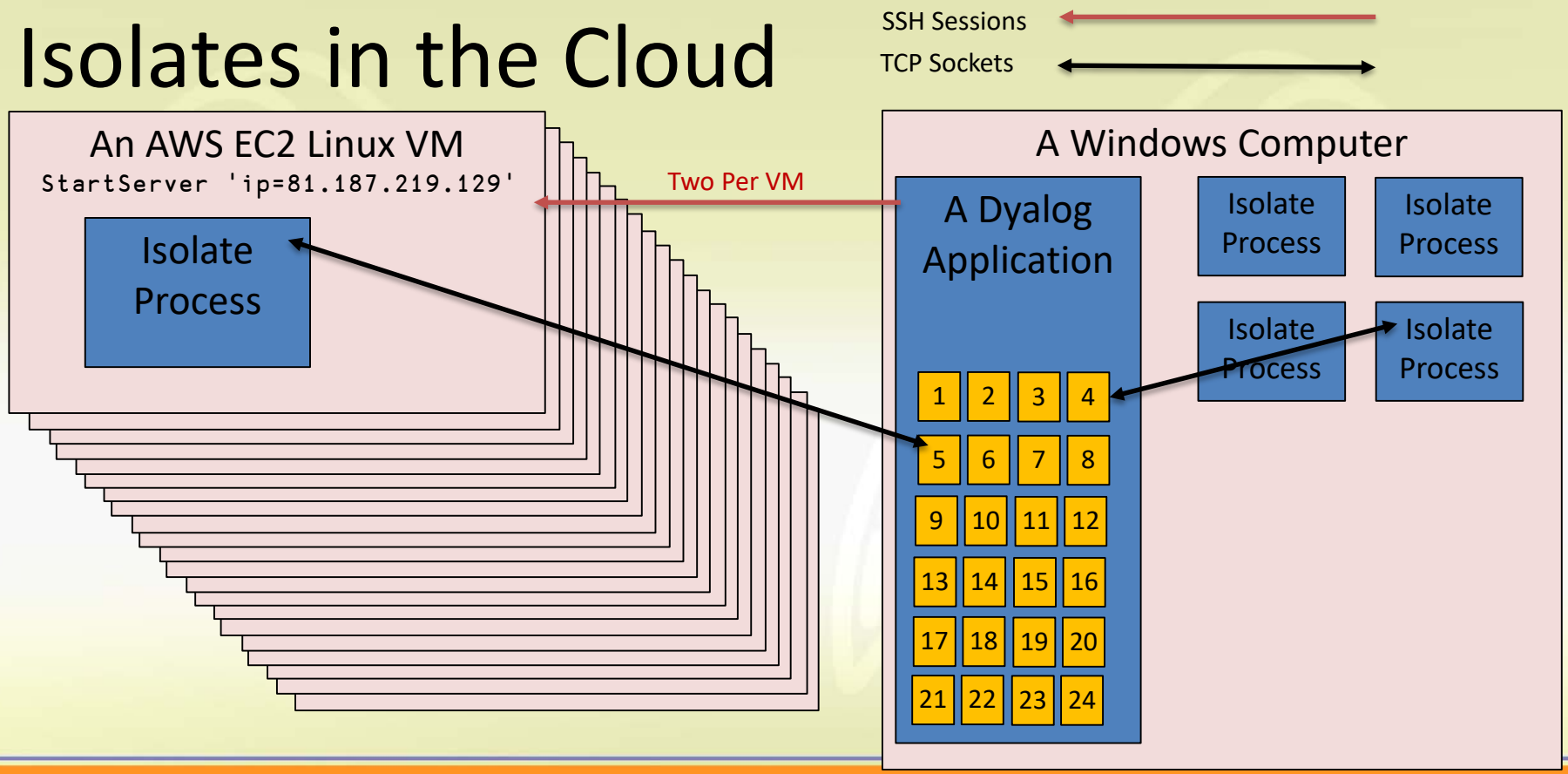


Isolates in the Cloud



Isolates in the Cloud



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- A quick demo of ⎕II.EachX

Summary

- Dyalog is creating tools, frameworks and samples for distributed / cloud computing, including
  - APLSSH client to securely start processes on remote machines
  - Running Isolates in the Cloud
  - Microservice Frameworks (e.g. JSONServer)
  - Docker / Container tools
- DAAAS (Dyalog APL As A Service) coming soon
  - We will publish "premium" AMI's with Dyalog APL, JSONServer and MiServer pre-installed
  - Pre-build Docker containers with Dyalog installed
  - Hardest problem is to decide on pricing
- We aim to publish a reference architecture for scalable services.

Webinar 11

- **Thursday, May 17th at 15:00 UTC:**
  Creating and managing your own User Commands