Find the best way to optimize MathWorks Licensing

Gareth Thomas

Things to remember

- Collecting Usage data on MathWorks products is possible
- Measuring is key to optimizing licenses
- Open iT has a very elegant solution

Motivation

- Collecting Usage data on MathWorks products is possible
  - **At VersionBay we needed to track MathWorks usage to projects**
- Measuring is key to optimizing licenses
  - **With the data we even changed our business model as consultants**
- Open iT has a very elegant solution
  - **Not many people are aware of Open iTs solution**

Who am I?

- Co-founder of VersionBay (Netherlands)
- Business Development Manager at MathWorks (Netherlands)
- Industry Marketing Manager at MathWorks (Netherlands)
- Senior Application Engineer at MathWorks (Netherlands)
- Application Engineer at MathWorks (Netherlands)
- Software Engineer at Oceanscan (Scotland)
- Consultant at Siemens (Portugal)
- MSc Electrical Engineering (Portugal)

VersionBay
embracing change

MathWorks
Accelerating the pace of engineering and science

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MathWorks
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MathWorks
Accelerating the pace of engineering and science

oceanscan™

SIEMENS

TÉCNICO LISBOA

Empowering people to leverage state-of-the-art software stacks

Why don’t people upgrade?

- It works, why change?
- How long will it take?
- This will happen multiple times a year, what about next version?
- Nothing is guaranteed to work
- How to improve code writing skills to make this smaller issue in future?

Facts about MATLAB

19
New Products Released by MathWorks in 2019 and 2020

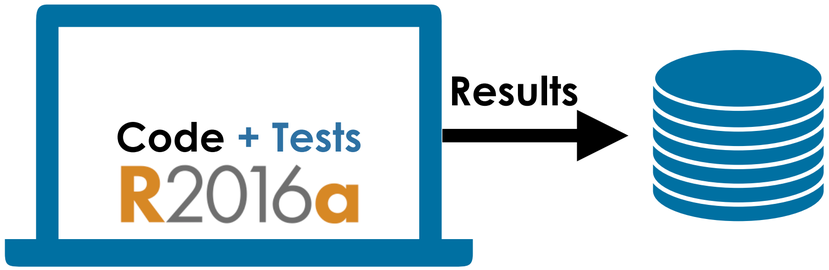
117
Current Products Supported by MathWorks

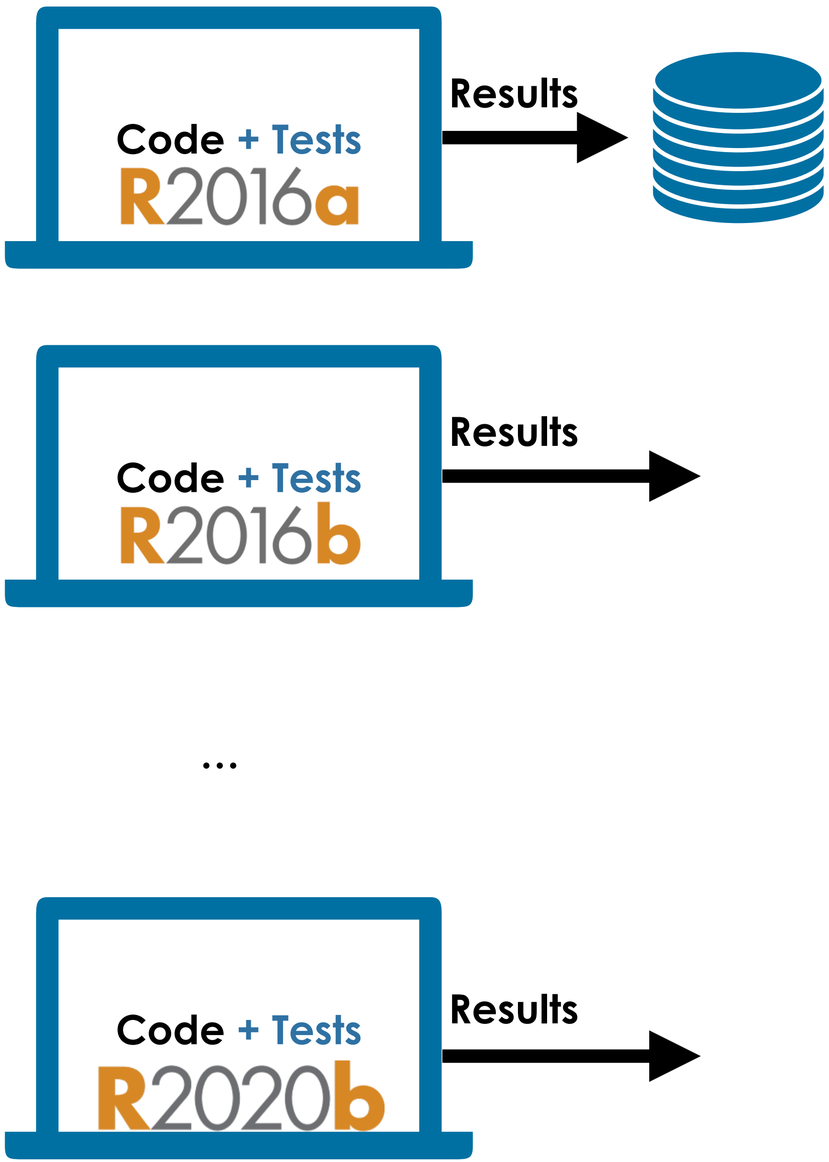
323
Software Changes to MATLAB in R2019b to R2020b

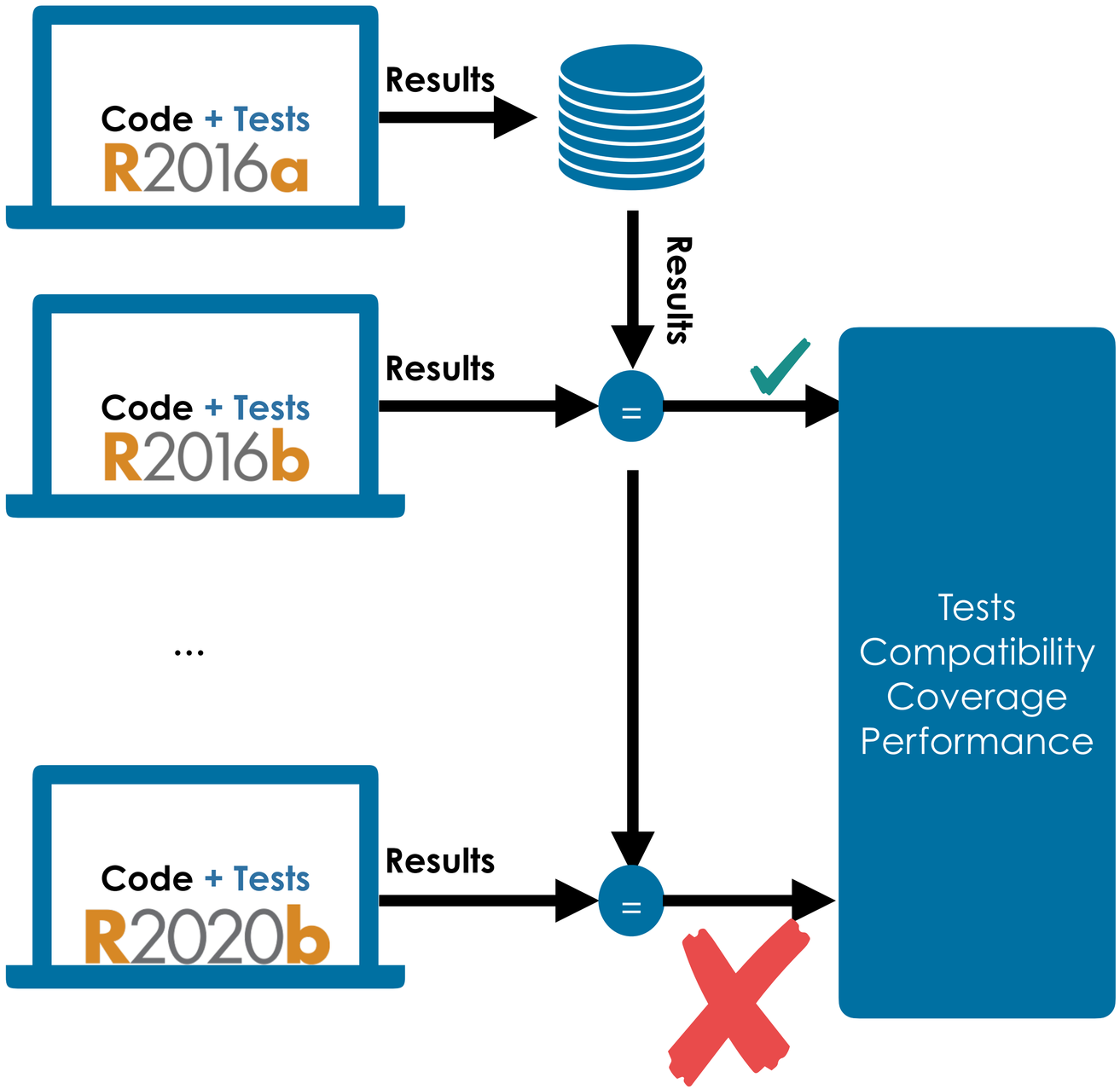
Common Challenges

- When to upgrade?
- Who owns the upgrade?
- Which version to adopt?
- How to manage all versions of the code?
- Which version is the reference?

How to solve this?


Code + Tests
R2016a
Results


Code + Tests
R2016a
Results
Code + Tests
R2016b
Results
...
Code + Tests
R2020b
Results


Code + Tests
R2016a
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Code + Tests
R2020b
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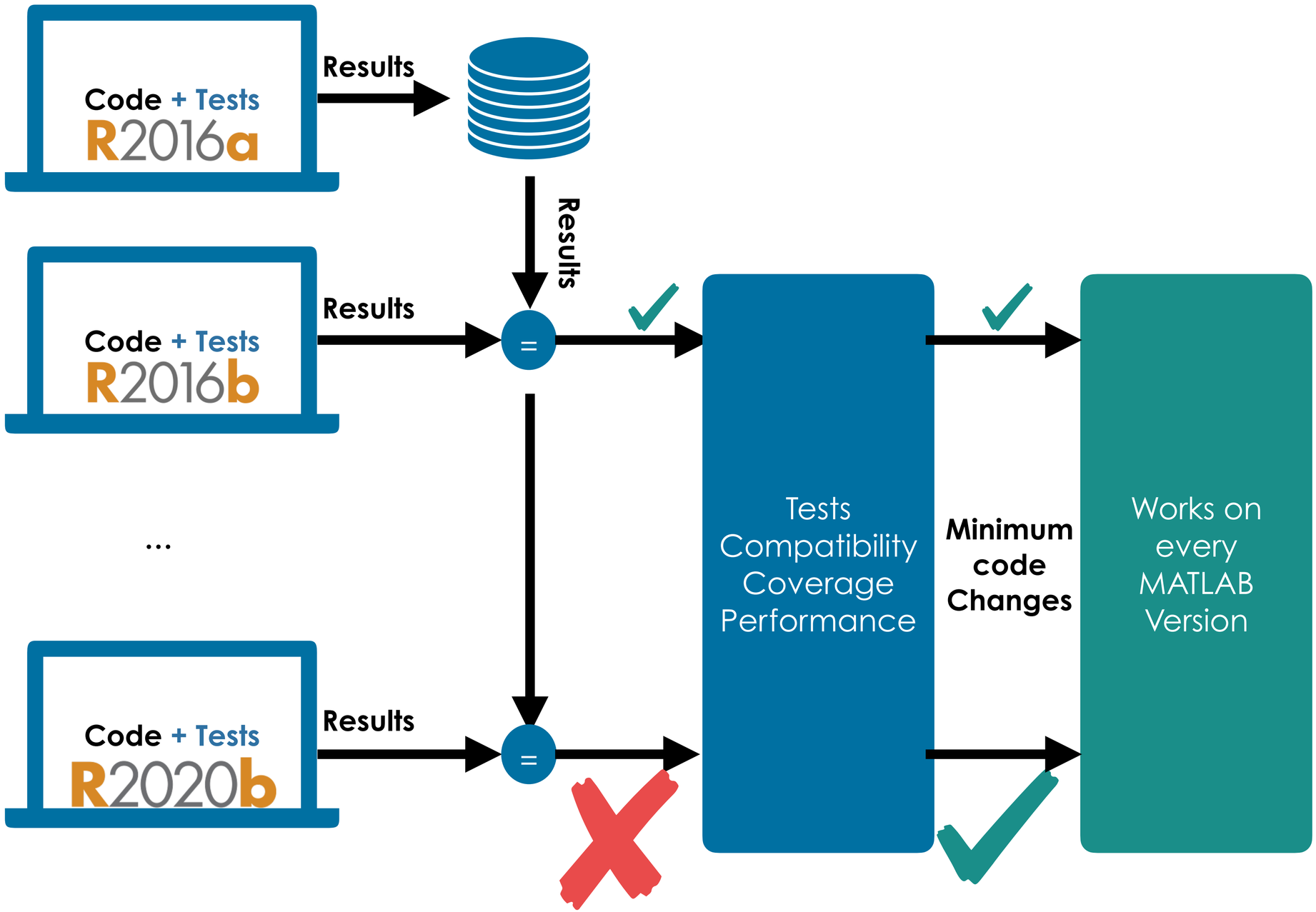
Tests
Compatibility
Coverage
Performance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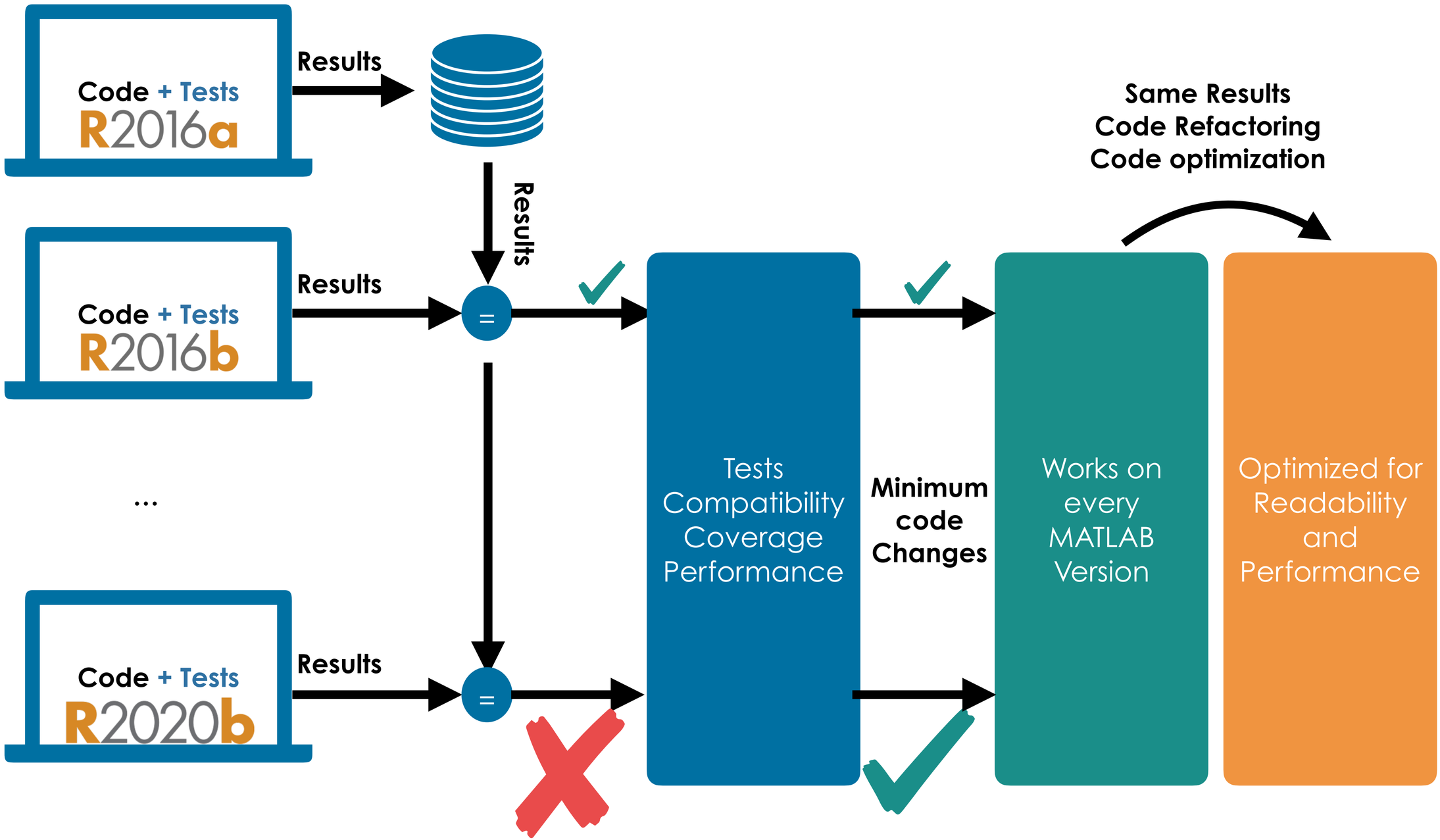
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Same Results
Code Refactoring
Code optimization
Optimized for
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and
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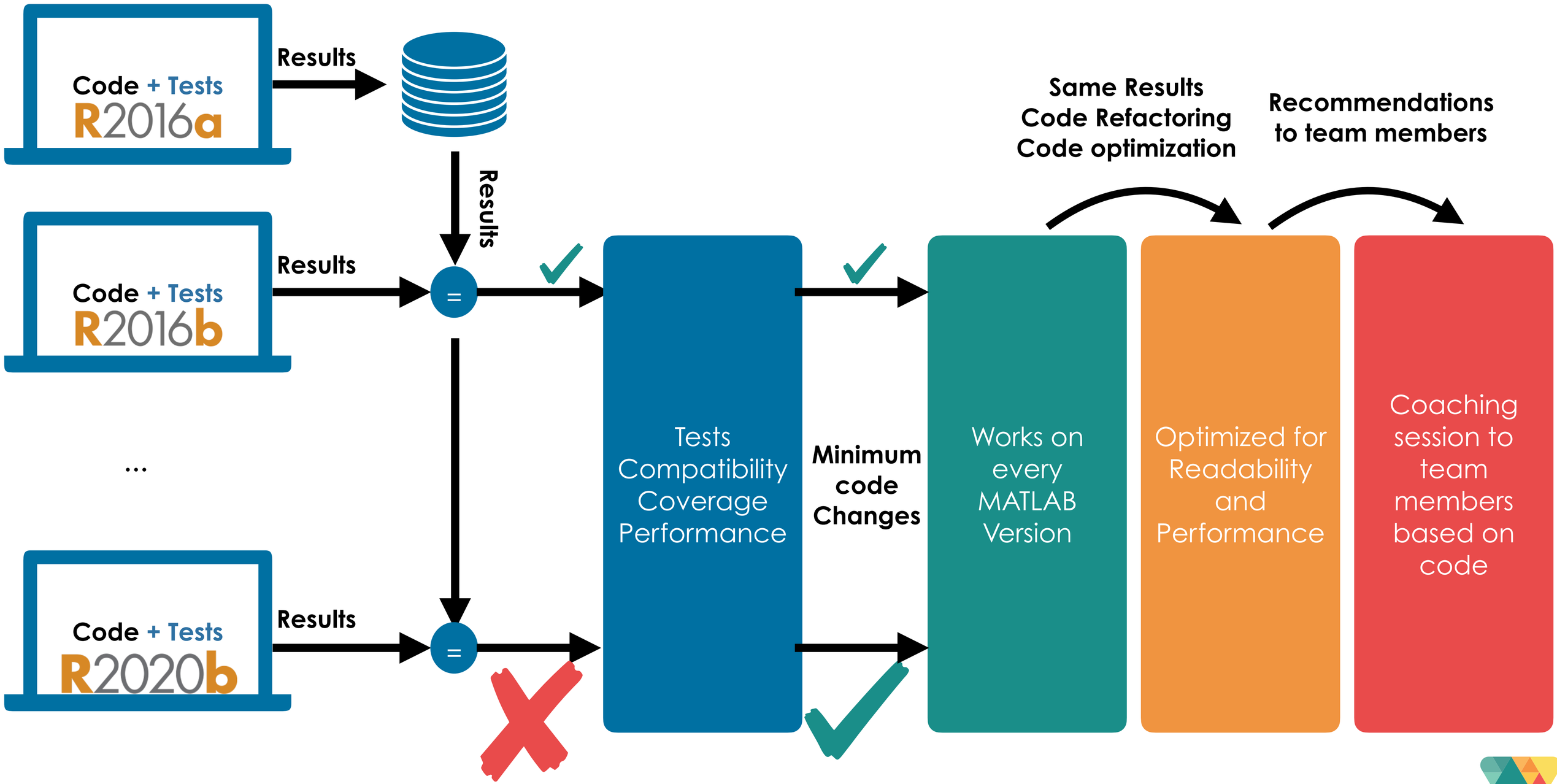
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and
Performance
Recommendations
to team members
Coaching
session to
team
members
based on
code

What we sell?

VersionBay Services

MATLAB/Simulink and Python Consulting

Migration Consulting

Automatic Code Generation Consulting

MathWorks Tools usage

#1- Customer Projects

- Consultants work onsite or remotely
- Help with MATLAB projects/implementations
- Examples

#2- Internal Testing

- Leverage knowledge
- Build knowledge
- Internal testing system integrated into Jenkins

Problem Statement + Motivation

- Tracking Usage of MathWorks Products & Versions of our consultants
- IF we bring our own licenses, this has a cost for us. Measuring and tracking this allows us to charge according - Chargeback to customers
- As we get more projects, it is important to know how much time we spend in each Version (optimising our internal testing capabilities)

Quick Overview of License Types

- Standard
  - Individual
  - Network Name User
  - Concurrent
  - Global
- Education
- Home
- Student

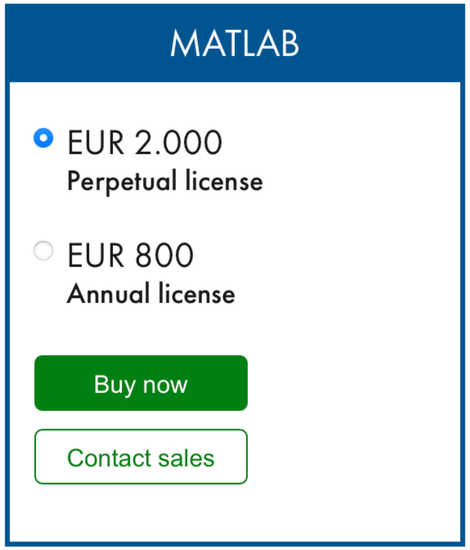
License Types Individual

Individual

The Individual license is intended for use by a single named user.

How It Works

- The products are used by a single named user.
- The products can be activated on up to four different computers, provided that the products are only accessible to and used by that single named user.
- A named user may not use a product on more than two computers simultaneously.
- The license is restricted to a single country of operation. Global Individual licenses are available to serve users around the world. Contact MathWorks for pricing information.



License Term

- This license is available for perpetual or annual use:
  - Perpetual licenses provide the right to use the software indefinitely, and the first year of MathWorks Software Maintenance Service is included in the initial purchase price. After the initial 12-month period, an annual fee is required to renew your Software Maintenance Service.
  - Annual licenses provide the right to use the software for a 12-month period, and MathWorks Software Maintenance Service is included in the license fee. To ensure uninterrupted service, you may renew your license prior to the conclusion of the license term. Otherwise the license and Software Maintenance Service will expire at the end of the term period.

Network Named User

Network Named User

The Network Named User License Option is intended for a specified number of designated named users to use the products on any computer that is connected to a single network license manager.

This license option requires a minimum of two named users.

How It Works

- You specify the list of named users for each product on your license and edit a file to maintain a list of authorized named users.
- The products may be used by authorized named users on computers connected to the license manager up to the maximum number of named users licensed for each product.
- A named user may not use a product on more than two computers simultaneously.
- You may install products in a central location or on individual computers as long as the use on all computers is controlled by the same network license manager.
- The license is restricted to a single country of operation. A Global Network Named User license is available to serve users around the world. Contact MathWorks for pricing information.

MATLAB

Online Pricing Not Available

Request a quote

Contact sales

Concurrent

Concurrent

The Concurrent License Option is intended for multiple users to use the products simultaneously on any computer that is connected to a single network license manager.

How It Works

- You specify the products you require and the number of concurrent use keys for each product on your license.
- Multiple users can access the software simultaneously on any number of computers served by the network license manager.
- When the number of simultaneous users equals the number of concurrent keys, anyone who subsequently tries to start the software is denied access until a key becomes available again.
- You may install products in a central location or on individual computers as long as the use on all computers is controlled by the same network license manager.
- The license is restricted to a single country of operation.
  - For the purpose of this license option, member countries of the North American Free Trade Agreement (NAFTA) shall be considered located in the same country; Iceland, Norway, Switzerland, the United Kingdom or any member country of the European Union (EU) shall also be treated as a country.
  - A Global Concurrent license is available to serve users around the world. Contact MathWorks for pricing information.

MATLAB

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Solution that VersionBay used

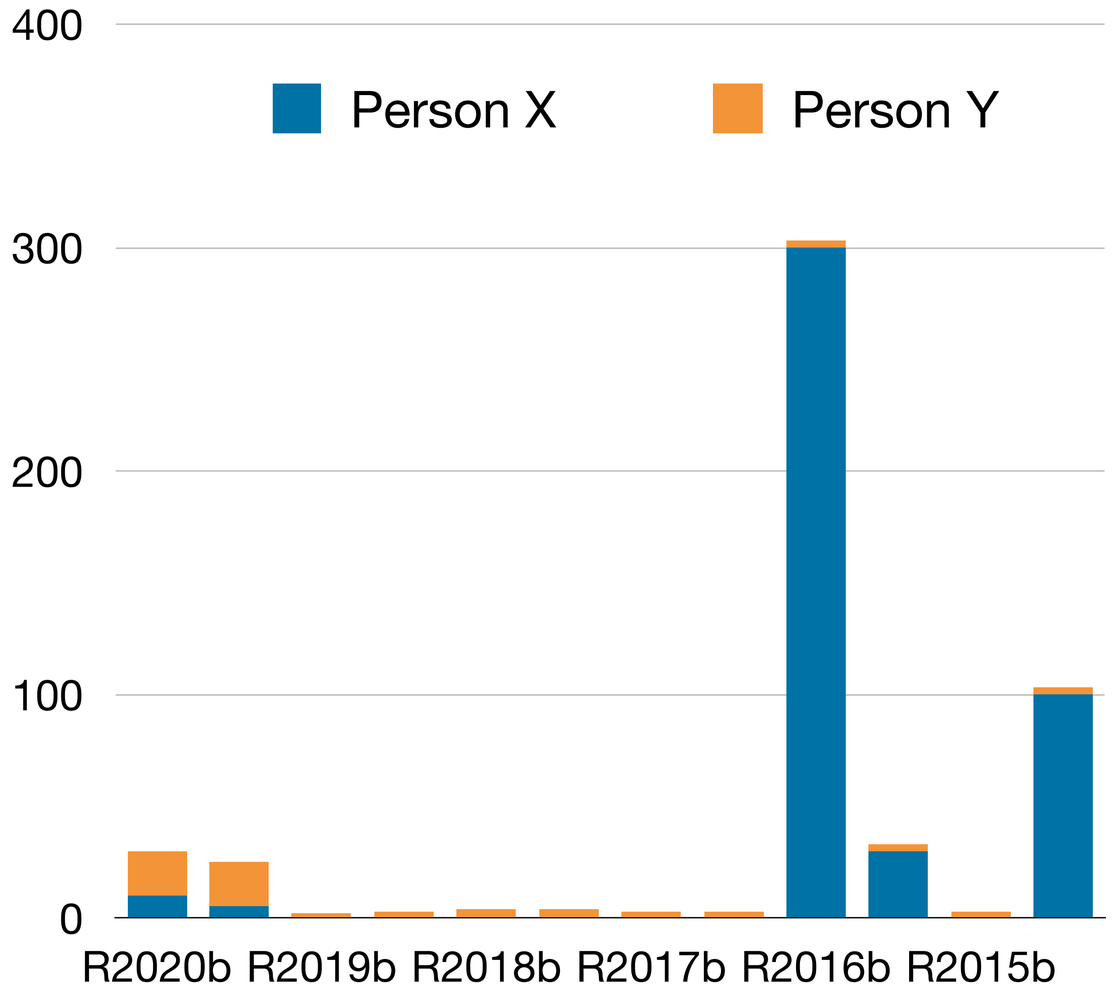
- License*Analyzer2020* Lvl2 + License*Planner*
- We installed clients on every machine
- Setup Projects so we can toggle between projects
- Store data on Open iT servers and create our reports from there
- Setup automatic invoicing

Results - Charge per Project

Project	MATLAB Usage (in hours)	Toolbox Usage (in hours)	Yearly Cost of MATLAB+Toolboxes for VersionBay	Cost for Customer
X	100	0	XYZ	(Direct proportion)
Y	150	150	ZZZ	(Direct proportion)
...				

Results - Team Time per Version

	Person X	Person Y	…
R2020b	10	20	
R2020a	5	20	
R2019b	0	2	
R2019a	0	3	
R2018b	0	4	
R2018a	0	4	
R2017b	0	3	
R2017a	0	3	
R2016b	300	3	
R2016a	30	3	
R2015b		3	
R2015a	100	3	
…			
R2013a	30	5	



Results

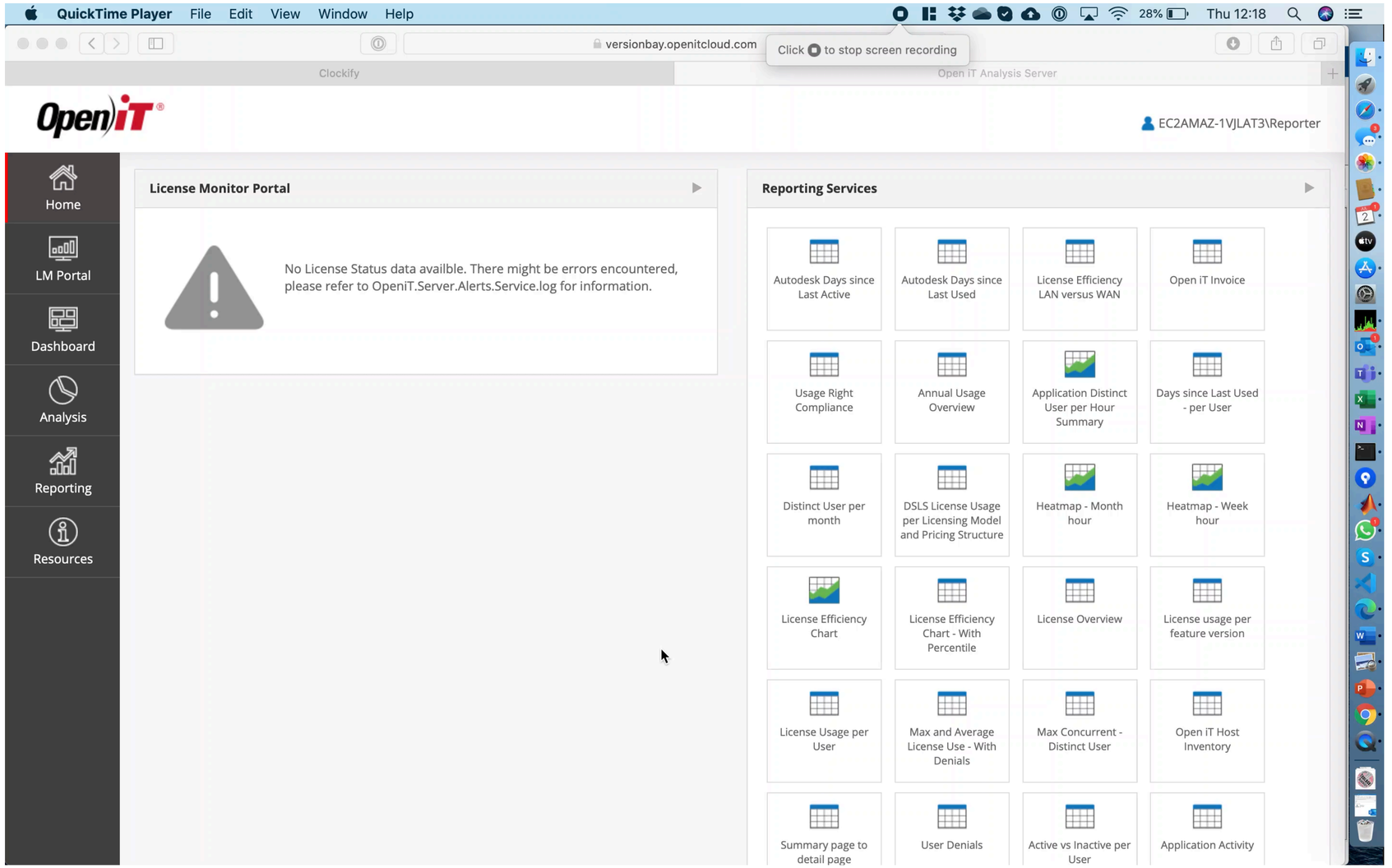
- We have a means to automatically charge based on #h in MATLAB
- Team spending more time in certain Versions
- Usage of latest versions is lower than we would like triggering additional activities to stay up to day.
- Changed our charging model to our customers.

What is next?

- As the team grows, explore different license types based on pricing and usage

Concurrent is more flexible and is 4x more expensive than Individual

License*Analyzer2020*



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