



Course as Code

The future of AT Computing's training courses

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Once upon a time...

- 1985
- Started as a training company
- UNIX -> Linux
- Grew and shrunk over the years and had some siblings
- Acquired by Vijfhart IT-Opleidingen in 2018
 - Now part of Complementair Groep
 - Fully independent company within the group
 - 14 technical trainers/engineers + 4 staff (at the moment...)





Our heritage & conviction

- High quality training courses
 - 20+ classroom trainings about open source technologies and programming languages
- Trainers with real world experience
- Hands-on labs during all courses
- Thorough delivery process



Safety first.

And second. And third. And....there was no fourth.



Change = risk.





Challenges

- The lab environment was not scalable
- The lab environment was only available on-site
- The lab environment required manual work and manpower to deploy
- The lab environment was... getting really old (Scientific Linux 6)
- The lab was basically a (quite complex) monolith
 - It was nearly impossible to change one course lab without impacting others
 - It was nearly impossible to test all the dependencies

Then it happened...



The K-bomb







Computer says no.



To the drawing board.



Requirements

- Independent labs for every training course
- Easier to scale
- Available anywhere
- Easier to maintain
- Easy to deploy



More requirements

- We wanted to use cloud technology, but stay as far away from vendor lock-in as possible
- We wanted to “decouple” and enable 3 different kinds of teams to work independently together
 - *Lab-team* working on the common lab-infrastructure (“backend”)
 - *Course-team* working on a specific course (“frontend”)
 - *Delivery-team* deploying course labs when a course is scheduled



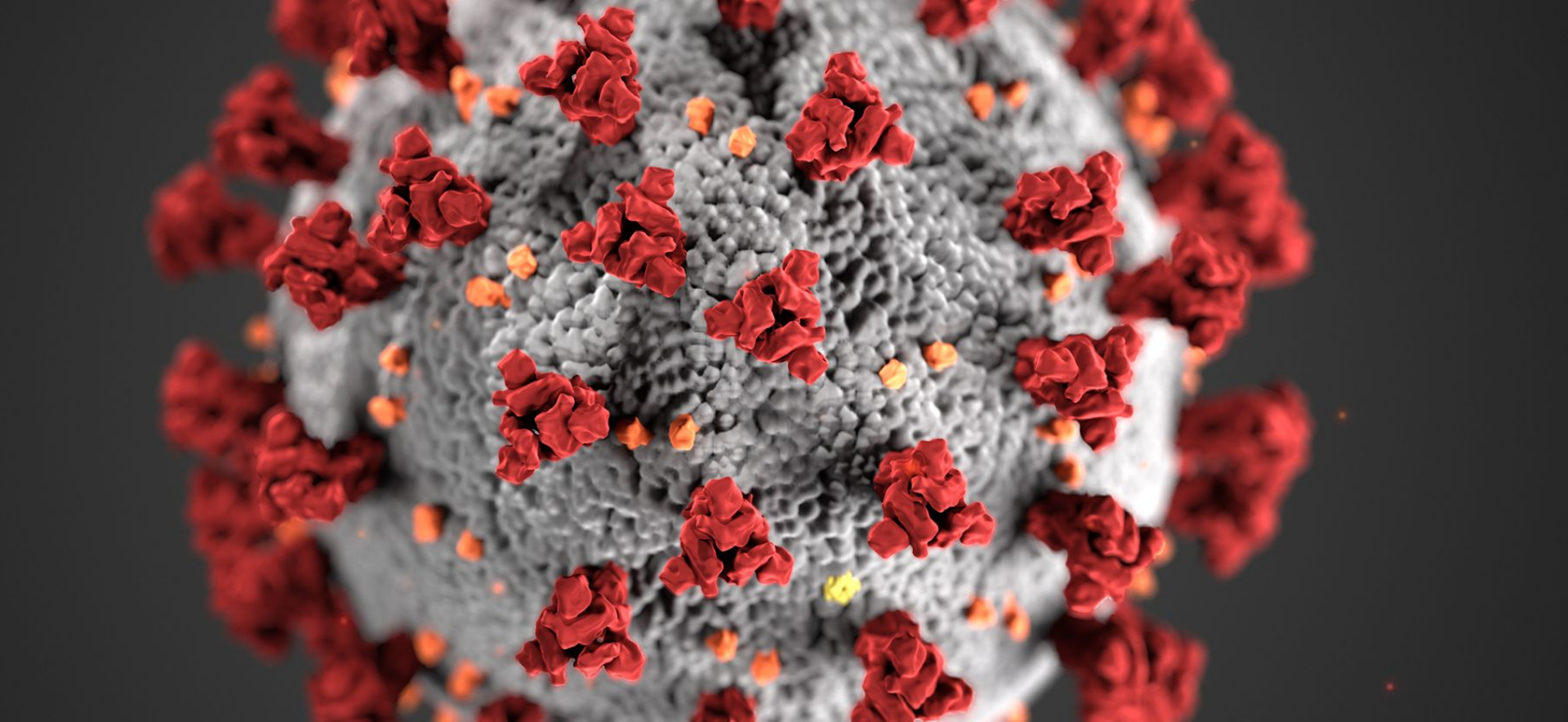


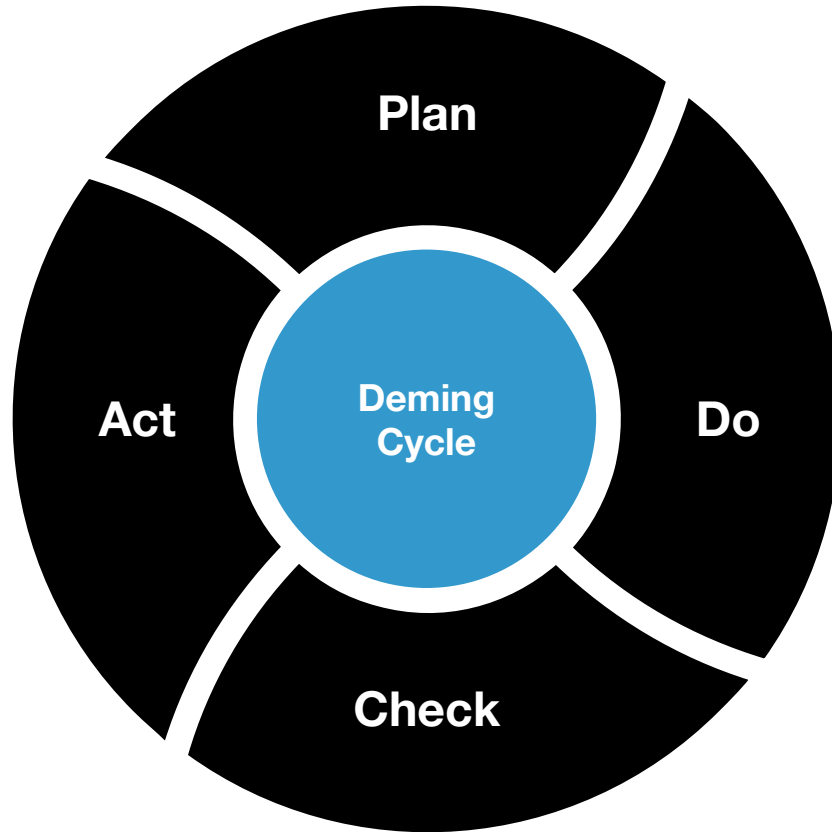
DEMO




We went live in January 2020...







 **Change = learning.**



Stuff has changed

- Breaking changes are no longer a taboo
- Tools change rapidly
- New tools emerge and older ones disappear rapidly
- Customers have become less patient



Keeping up > predictability



**We need to master the
art of maintenance.**



What about the course itself?

- Running cloud-based labs is only a part of a complete training course
- Some of the same issues we had with the lab: legacy
- 4000+ slides of content.... Lots of text...



Some observations...

- Self-paced e-learning = booming
 - Employers provide “unlimited learning” through subscriptions
 - Udemy, Pluralsight, GoodHabitZ, Coursera, Skillsoft, edX etc.
 - Big money: multi-million Dollar business, lots of venture capitalists
- Hybrid / blended learning keeps emerging
 - Different ways of learning combined to make the stuff stick
- Lots of research on effectiveness of various learning methods
- But.... “Old school” Classroom training is NOT dead (and far from dying)



E-learning is **#winning** for students

E-learning is **#notsomuchwinning** for professionals



Learning/training challenges

- Present knowledge
- Self-discipline
- Amount of guidance
- Learning style
 - Lot's of discussion in the academic world
 - Classic VARK model = debunked*



The future of AT Computing...

- We are not an e-learning company and have no ambition to become one
- We are pretty good in providing classroom training
- We believe in a hybrid model
 - Different ways of learning combined






Course as Code



Our goal

- Develop every course as if it is an e-learning course
- Deliver the course based on the needs of the customer
 - Classroom
 - Guided remote learning
 - E-learning
- Support various hybrid scenarios
 - E-learning as preparation for classroom training
 - E-learning as follow up after a classroom course
 - E-learning to learn more about some specific topic (“microlearning”)



Did I mention we

open source?



Did I mention we do
not
like vendor lock-ins?



Content Delivery puzzle

- Many e-learning platforms aim at some form of lock-in
 - Exporting content is not always possible or still in “beta”...
- We don't want our crown jewels to be locked in to some vendors system
- We have to embrace some of the leading platforms for delivery
 - If you can't beat them, join them
 - It can massively improve worldwide visibility (compared to hosting our own solution)

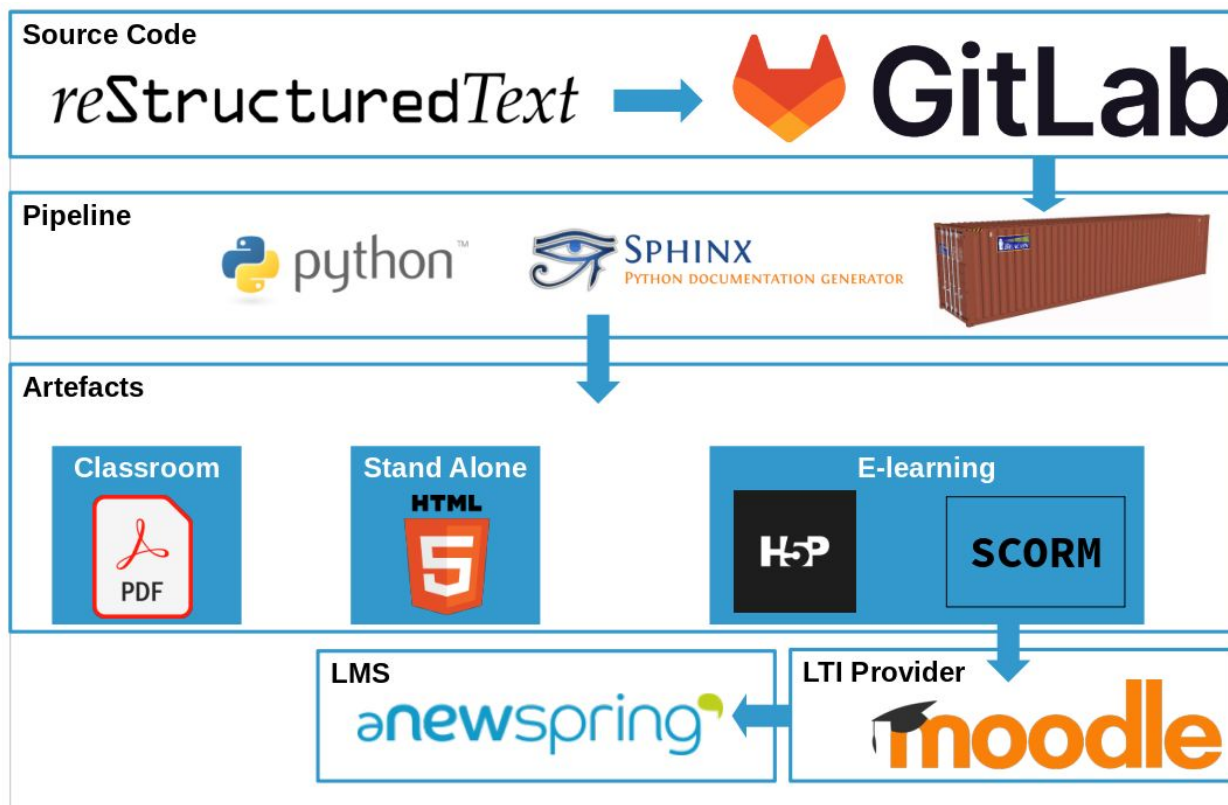


On our way to full control

- All our courses are just code repositories in our GitLab environment
- In theory we can export to every tool that is SCORM or H5P compatible
 - De-facto standards in the e-learning realm
- We can use the same codebase for classroom training and e-learning
 - We differentiate by using directives
 - This saves us a huge amount of time on maintenance
- We should be able to use various e-learning platforms (for content delivery)
- Probably the LTI standard will be the best way to distribute our content
 - Stands for Learning Tools Interoperability



Create. Package. Distribute.



**We are not there yet,
but we are making progress.**



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Thank you!

