Introducing Python as a main Programming Language

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Agenda

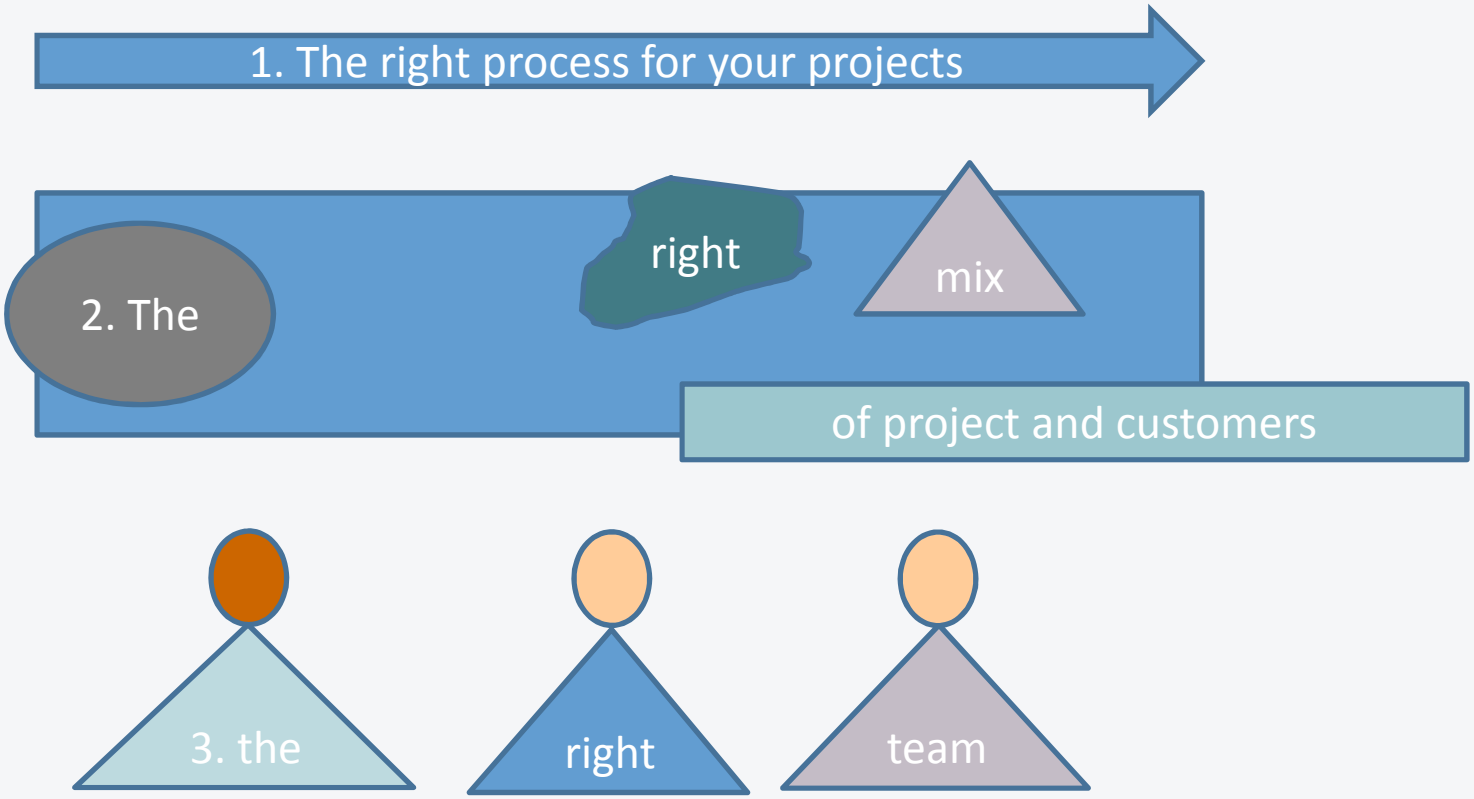
1. Motivation, why this talk?
2. About soXes
3. Why a new language
4. ..And why Python?
5. How we implemented Python@soXes
6. The problems we had
7. Python & the business
8. Was it worth?

Motivation 1

The main challenge of all IT projects and by consequence a formidable test for all companies offering individual software

Motivation 2

How to pass this test successfully?




```
def the_right_technology(last_but_not_least):
        python_is_it = True;
```

Motivation 3

I do not know about enforcing luck but over time we @soXes learnt very hard about processes, people and technology.

I believe that in my position as CTO with a technical background but a business perspective I have a unique experience which I would to share….

About soXes

Owned by
Thomas Klauser (CEO)
Patrick Büchler (CTO)

Founded
2001

HQ
Bubikon near Zürich

References
Over 150 projects and 80 customers

Teams in
Minsk
Saigon

60 Employees
13 Business Analysts / PM
41 Developers and Testes
1 User Interface Designer
1 System administrator
1 Back office
3 Apprentice

Business: Individual Software Development & Consulting

Trust
We listen to our customer and we act according to their best interest

Competence
Employees of soXes know the right technologies and when to apply them

Sustainability
We are 100% self financed, we work to live and we love our work

Why a new Language 1

soXes like most companies is driven by it’s sales funnel

The broader your offer the more projects you might get

But around 2010 / 2011 soXes had projects in Delphi, Java, C/C++,C#, PHP, javascript and naturally HTML, in addition we started having our first mobile projects. Commercially the projects had size from several man days to several man years!

Why Phyton 1

You need very skilled people to cover this load and range successfully

1. We had to reduce our portfolio of technologies but keep a broad funnel

2. ASP.NET and PHP were fix because we have customers with fix teams for these technologies

3. What language to replace all the remaining languages?

1. Clearly it must be a language which is platform independent, a language with a big community, a language with a future and a language which has a good learning curve

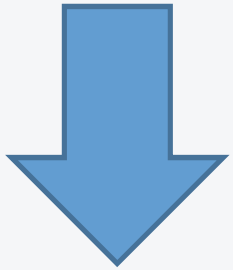
Why Python 2

1997 the answer was Java but now the answer is Python

1. Python is simple and readable
2. Python is versatile and platform agnostic
3. Python can be used for the web and on the client
4. Python is also a philosophy

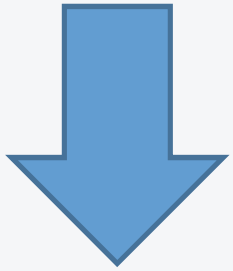
5. I personally love python!
6. I personally already had experience in Python and Java and I favored Python

How we implemented Python 1



?

So far so good but how to do this?



...and what about the risks?

How we implemented Python 2

Some principles my business partner and I learnt during our time as managers of a company

1. If you take decision you should implement it quickly
2. People usually learn better with real challenges
3. Innovation is not the same as research. As Entrepreneur you must innovate and not make research!
4. And finally a (small) company cannot spend much budget on unfinanced activities

How we implemented Python 3

We decided to make our first steps with python already with a real project

BUT we hedged our bet and decided

1. The first project should not be critical
2. The first project should not be too small (at least 1 man year)
3. The first project should contain no complicated technical challenges
4. The first project should contain no complicated business logic
5. The first should not be in a risky domain
6. We should use a very easy to use framework (web2py)
7. A specific team would get the first python project
8. We still gave the PM the goal to finish the project with a profit

The problems we had

Mostly, the project went surprisingly smooth! From what we learnt you should consider the following:

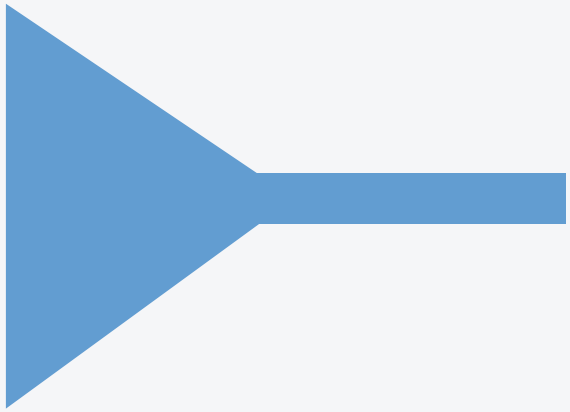
1. `def my_function() != public int myFunction()`
   Code reviews! Especially when the developer used Java or C# before. Interestingly enough developers coming from VB have less problems
2. Allow refactoring
   Give your team the time to make their first project perfect
3. Enforce refactoring
   Force your team to make the first project perfect
4. Be patient
   Do not forget, its new for most developers
5. Be strict
   You decided to take a risk and implement the project in a new language, stick to this decision
6. Python is agile, use this....
   With python your debug cycle is extremely quick, use this fact e.g. in the sprint review
7. Do not interfere too much
   Yes, you are the best of all developers, still let your colleagues work on their own, they will learn nothing if you do everything!

Python & The Business 1

Python, C#,
Webservice,
Joomla, SAP,
Salesforce,
API, Oracle

Remember

PHP
ASP.NET, Platform,
Office
iOS, Magento, JMS…



The funnel sometimes forces you to use a specific technology

Using Python will not change this because sometimes your customer does not want you decide about architecture and technology

Python & The Business 2

What factors are crucial for the decision about what technology to use?

Technical and Organizational Factors (let me call them reasonable)

1. Surrounding systems enforce a specific technology (e.g. JMS based message bus)
2. Basis System used by the company enforce at least partially certain technologies (e.g. the company uses Oracle)
3. IT Departments are often proficient on one platform only
4. Contracts with vendors or suppliers enforce a given technology
5. High Investments to change basis

Python & The Business 3

What factors are crucial for the decision about what technology to use?

Human Factors (let me call them personal)

1. IT Departments are often reluctant to change their systems even when outdated or try something new (consider the type of personality who becomes Sys Admin)

2. Management hear saying (we MUST have SharePoint because it will solve all our problems as my friend told me)

3. Internal Politics (we decided that XYZ is the best architecture, we cannot change now)

4. Quasi-Religiuos believes of important decision makers or influential people (there is no better sport than to provoke a developer by criticizing his language of choice)

Python & The Business 4

So the customer wants a suggestion, is there an advantage in offering Python?

The word Python itself will not open doors but you can use the following arguments

1. Platform independent
2. **Very fast development cycle**
   I find this the amazing part: You can even debug and change the code onsite during the sprint review!
3. Completely Open Source
4. Mature
5. Big Community
6. Do not force your choice of technology! Remember who is paying!

Python & The Business 5

So the customer wants a suggestion, is there an advantage in offering Python?

You will have to overcome the following fears

1. **Fear of *Vendor Lock In***
   Most people business know exactly .NET and Java and believe that everything else is a niche.

2. **Fear of Open Source**
   This is understandable, there are many *Dead Open Source projects*….

3. **Lend your helping hand to the Sysadmin:**
   Maybe he used SQL Server and IIS since 199x! Suddenly it's Postgres SQL and web2py. Help him and he will be a grateful promoter of your technology, leave him alone AND…

4. **Most problems are not technical!**
   Remind your customer and your team about this

Was it worth 1

YES

Was it worth 2

1. Python is well established now

2. At the moment 4 different projects with Python

3. Strategic decision: All individual web projects @soXes are done with web2py

4. Wherever possible we suggest using Python

Thank You