Flasky Goodness

(Or Why Django Sucks?)

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Hi.

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heroku

Open Source

Python-Guide.org

The Hitchhiker's Guide to Python

- Documented best practices.
- Guidebook for newcomers.
- Reference for seasoned veterans.
- Don't panic & always carry a towel.

Requests

HTTP for Humans

```
>>> r = requests.get('https://api.github.com/user', auth=('user', 'pass'))
>>> r.status_code
200
>>> r.headers['content-type']
'application/json; charset=utf-8'
>>> r.encoding
'utf-8'
>>> r.text
u'{"type":"User"...'
>>> r.json
{u'private_gists': 419, u'total_private_repos': 77, ...}
```

Httpbin.org

```
$ curl http://httpbin.org/get?test=1
{
  "url": "http://httpbin.org/get",
  "headers": {
    "Content-Length": "",
    "Connection": "keep-alive",
    "Accept": "*/*",
    "User-Agent": "curl/7.21.4 ...",
    "Host": "httpbin.org",
    "Content-Type": ""
  },
  "args": {
    "test": "1"
  },
  "origin": "67.163.102.42"
}
```

Et Cetera

- Legit: Git Workflow for Humans
- Envoy: Subprocess for Humans
- Tablib: Tabular Data for Humans
- Clint: CLI App Toolkit
- Autoenv: Magic Shell Environments
- OSX-GCC-Installer: Provokes Lawyers

275+ More

Open Source

All The Things!

Build for Open Source

- Components become concise & decoupled.
- Concerns separate themselves.
- Best practices emerge (e.g. no creds in code).
- Documentation and tests become crucial.
- Code can be released at any time.

Abstraction

Let’s build something.

We’ll use Django, of course.

Django Benefits

- Makes modular decisions for you.
- Makes security decisions for you.
- Excellent documentation available.
- Installable third-party Django apps.
- Tremendous resources & community.

Django Handles Things

- Admin & Management Interface
- Database Schema & Migrations
- User Profiles and Authentication
- User Sessions and Cookies
- Internationalization

Anything is possible*.

Django Application


Django Application
Tools & Utilities
Web Process
Worker Process

Django Application

Tools & Utilities

Web Process

Worker Process

Management Tools

Supporting Services

Django Application

- Tools & Utilities
  - Management Tools
  - Supporting Services
- Web Process
- Worker Process
  - Deferred Tasks
  - Scheduled Tasks

Django Application

Tools & Utilities

- Management Tools
- Supporting Services

Web Process

- User Interface
- API Service
- Data Persistence
- CRUD Admin
- Authentication

Worker Process

- Deferred Tasks
- Scheduled Tasks

Single Codebases are Great

- All the benefits of the Django stack.
- Figure out architecture as you go.
- Shared modules keep you DRY.
- Make broad and sweeping changes quickly.
- Only need to deploy once.

Django Application

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Web Process

User Interface

API Service

Data Persistence

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Authentication

Worker Process

Deferred Tasks

Scheduled Tasks

Django Application

Tools & Utilities

Management Tools

Supporting Services

Web Process

User Interface

API Service

Data Persistence

CRUD Admin

Authentication

Worker Process

Deferred Tasks

Scheduled Tasks

Django Application

Tools & Utilities

Management Tools

Supporting Services

Web Process

User Interface

API Service

Data Persistence

CRUD Admin

Authentication

Worker Process

Deferred Tasks

Scheduled Tasks

Django Application

Tools & Utilities

Management Tools

Supporting Services

Web Process

User Interface

API Service

Data Persistence

CRUD Admin

Authentication

Worker Process

Deferred Tasks

Scheduled Tasks

Django Application

Tools & Utilities

Management Tools

Supporting Services

Web Process

User Interface

API Service

Data Persistence

CRUD Admin

Authentication

Worker Process

Deferred Tasks

Scheduled Tasks

Django Application

Tools & Utilities

Management Tools

Supporting Services

Web Process

User Interface

API Service

Data Persistence

CRUD Admin

Authentication

Worker Process

Deferred Tasks

Scheduled Tasks

Django Application

Tools & Utilities

Management Tools

Supporting Services

Web Process

User Interface

API Service

Data Persistence

CRUD Admin

Authentication

Worker Process

Deferred Tasks

Scheduled Tasks

Django Application

Tools & Utilities

Management Tools

Supporting Services

Web Process

User Interface

API Service

Data Persistence

CRUD Admin

Authentication

Worker Process

Deferred Tasks

Scheduled Tasks

Django Application

Tools & Utilities

Management Tools

Supporting Services

Web Process

User Interface

API Service

Data Persistence

CRUD Admin

Authentication

Worker Process

Deferred Tasks

Scheduled Tasks

Django Application

Tools & Utilities

Management Tools

Supporting Services

Web Process

User Interface

API Service

Data Persistence

CRUD Admin

Authentication

Worker Process

Deferred Tasks

Scheduled Tasks

Django Application

Tools & Utilities

Management Tools

Supporting Services

Web Process

User Interface

API Service

Data Persistence

CRUD Admin

Authentication

Worker Process

Deferred Tasks

Scheduled Tasks

Django Application

Tools & Utilities

Management Tools

Supporting Services

Web Process

User Interface

API Service

Data Persistence

CRUD Admin

Authentication

Worker Process

Deferred Tasks

Scheduled Tasks

Django Application

Tools & Utilities

Management Tools

Supporting Services

Web Process

User Interface

API Service

Data Persistence

CRUD Admin

Authentication

Worker Process

Deferred Tasks

Scheduled Tasks

Django Application

Tools & Utilities

Management Tools

Supporting Services

Web Process

User Interface

API Service

Data Persistence

CRUD Admin

Authentication

Worker Process

Deferred Tasks

Scheduled Tasks

Django Application

Tools & Utilities

Web Process

Worker Process

Management Tools

Supporting Services

User Interface

API Service

Data Persistence

CRUD Admin

Authentication

Deferred Tasks

Scheduled Tasks

Django Application

Tools & Utilities

Web Process

Worker Process

Management Tools

Supporting Services

User Interface

API Service

Data Persistence

CRUD Admin

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Data Persistence

CRUD Admin

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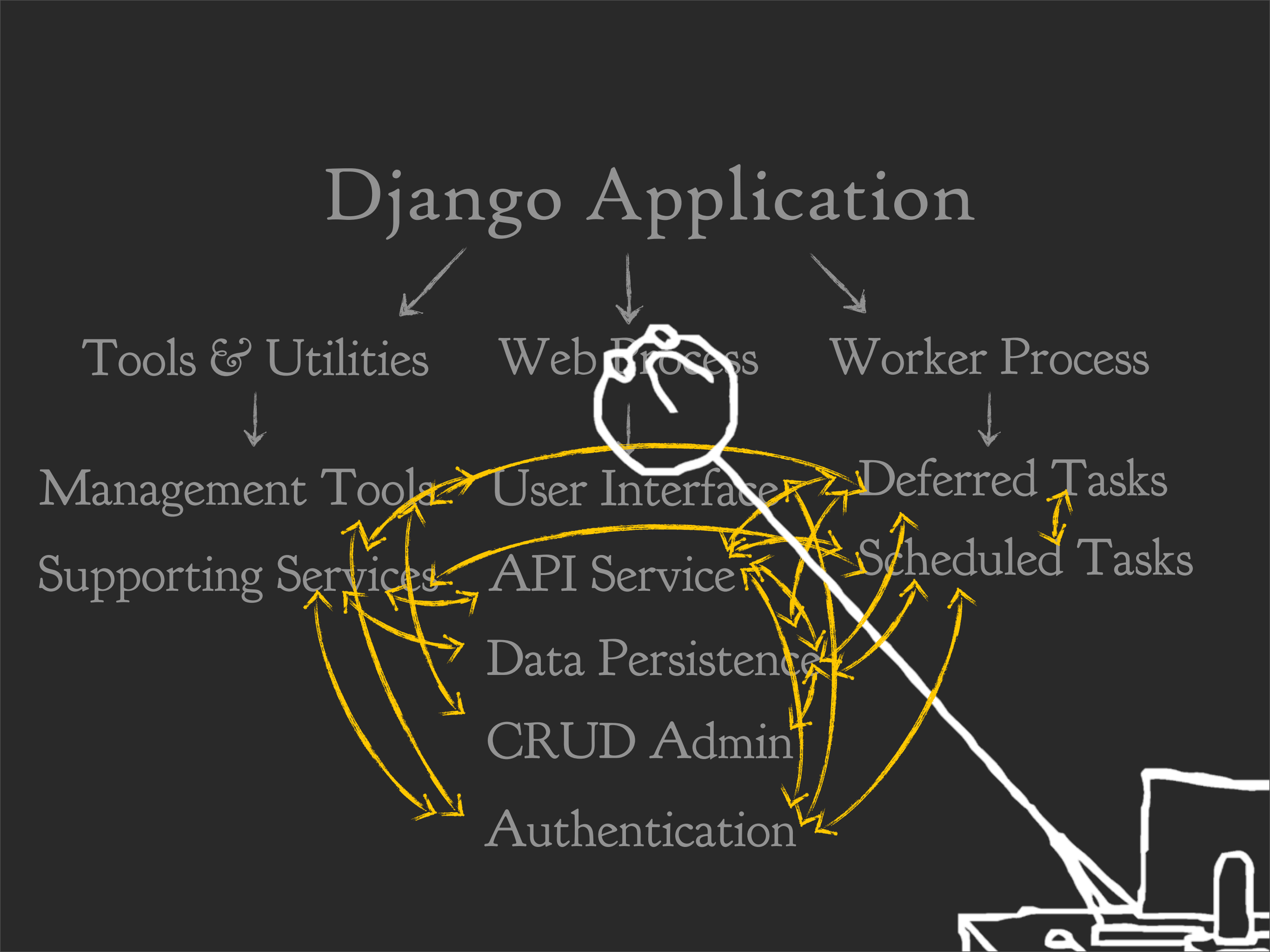

Single Codebases are Evil!

- Components are tightly coupled.
- Broad tribal knowledge is required.
- Iterative change of components difficult.
- Technical debt has a tendency to spread.
- Forced to deploy everything at once.

Anything is possible*.

* But it'll often be a monolithic app.

CONSTRAINTS FOSTER CREATIVITY

Constraints are Good

- Text Editors vs IDEs
- Prime vs Zoom Lenses
- Mac OS X vs Desktop Linux
- Pen & Paper vs Digital Notes
- Monolithic Apps vs Services

Keep ‘em Separated

Developers

End Users

API Service ← Frontend

Data Persistence

Build for Open Source

- Components become concise & decoupled.
- Concerns separate themselves.
- Best practices emerge (e.g. no creds in code).
- Documentation and tests become crucial.
- Code can be released at any time.

Build for Services

- Components become concise & decoupled.
- Concerns seperate themselves.
- Best practices emerge (e.g. ideal tools).
- Documentation and contracts become crucial.
- Services can be scaled separately at any time
- Dogfood is delicious.

Composability

End Users

Developers

End Users

Developers

End Users

API Service

Developers

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Data Persistence

Developers

End Users

Internal

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Data Persistence

Developers

End Users

Internal

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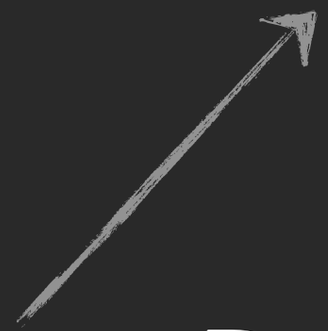


Message Queue → Workers

Data Persistence

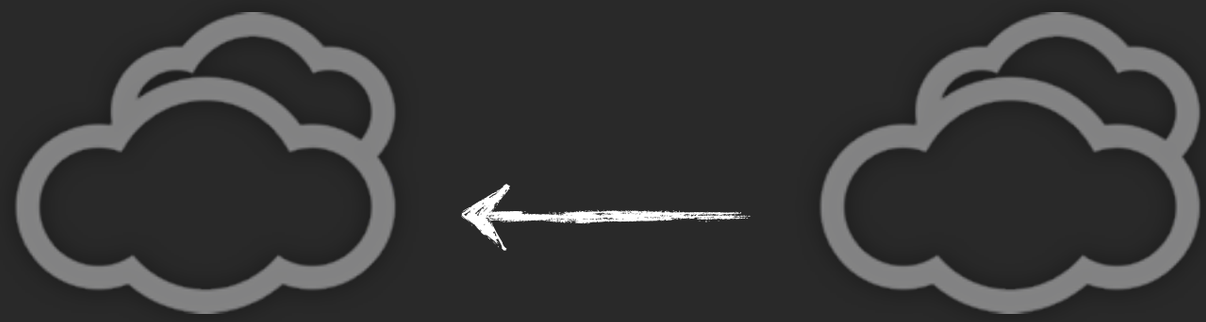
Let’s try it out.

We’ll use Django, of course.

Django: It Just Sits There™

Two Basic Components

API Service & Frontend Client



API Service	Frontend Client
Data Interface	User Interface
Business Logic	State and Sessions
Authentication	Public Face

Django for API Services

(and nothing else)

- Significant boilerplate code for simple views.
- No need for templates, tags, etc.
- API libraries are buggy; could use some love.
- `if request.method == 'POST'`

Django as API Consumer

(and nothing else)

- Keep in mind, database is handled by API.
- Makes modular decisions for you.
- Deals with the database for you.
- Installable third-party Django apps.

Django as API Consumer

(and nothing else)

- Everything is tied to the ORM.
- Third-party Django apps do too.
- User model requires sessions; isn't flexible.

What's Left?

Flask

Enter, Flask.

- HTTP Web Framework based on Werkzeug.
- Excellent for building web services.

Elegant & Simple

```
from flask import Flask
app = Flask(__name__)

@app.route(”/”)
def hello():
    return ”Hello World!”

if __name__ == ”__main__”:
    app.run()
```

Flask Familiarities

- WSGI Application Framework.
- Built-in Templating System (Jinja2).
- Active community, extensions for everything.

Flask Philosphies

- Started as an April Fool's joke.
- Very minimal; 800 lines of code.
- Heavily tested; 1500 lines of tests.
- Exhaustively documented; 200 pages of docs.
- Layered API; built on Werkzeug, WSGI.

Flask Differences

- Explicit & passable app objects.
- Simple, elegant API. No boiler plate.
- BYOB: Bring Your Own Batteries.
- No built-in ORM or form validation.
- Context locals. Keeps things looking clean.

Flask Improvements

- Fewer batteries == greater flexibility.
- Jinja2 is an incredible template system.
- Everything harnesses actual references.
- Configuration is a simple dictionary.
- It's hard to build monolithic applications.
- Response objects are WSGI applications.

Flask Improvements

- Werkzueug debugger.
- No import-time side effects.
- Signals system outside of ORM.
- Tests are simpler with real app objects.
- `return (content, status)`

Popular Extensions

- Flask-SQLAlchemy: Database Mapper.
- Flask-Celery: Delayed Jobs.
- Flask-Script: Management Commands.
- Flask-WTF: Form Validation.

Shameless Plug

- Flask-SSLify: App HSTS (SSL) Policies
- Flask-GoogleFed: Google Federated Auth
- Flask-Heroku: Env Variable Configurations

Flask is a sharp tool for building sharp services.

Use the right tool for the job.

Torn?

Flask vs. Django

Alcohol

vs.

Ponies

Why not both?

Services are agnostic.

Just speak HTTP.

Questions?

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