Docker Services Automation

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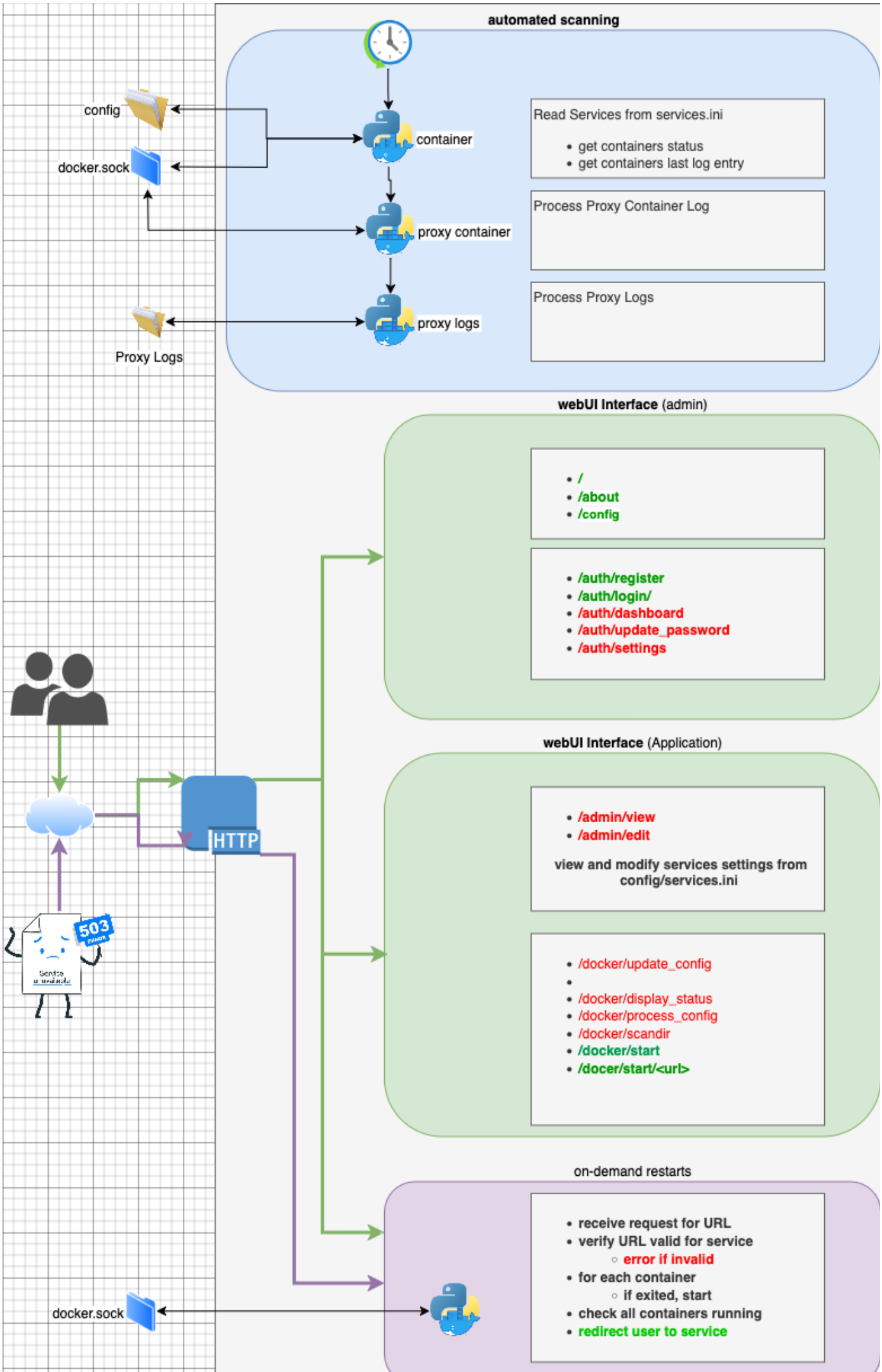
About

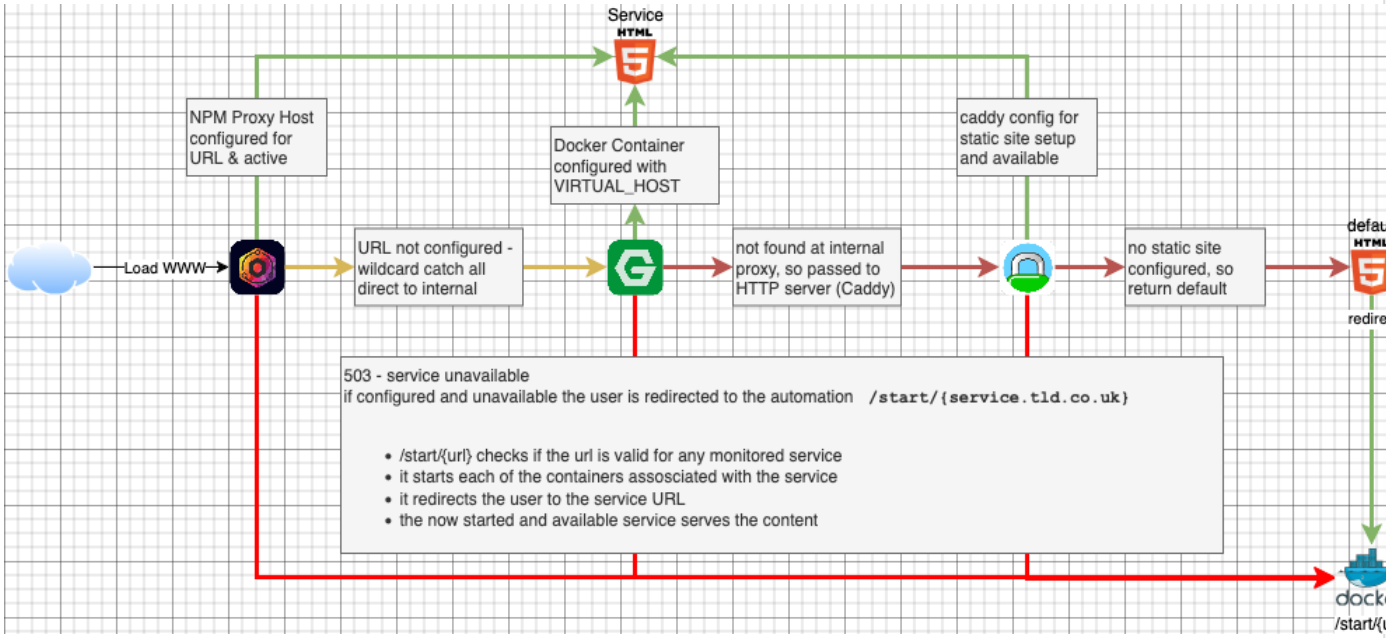
This project is intended to auto-manage docker status start/stop based on usage

- periodically check configured services, pausing containers that have been unused or idle over a preset time
- on-demand restart by users navigating to, or redirecting to `/start/<url>` which re-starts paused containers

Monitoring and AutoShutdown


automated scanning
config
docker.sock
container
Read Services from services.ini
get containers status
get containers last log entry
proxy container
Process Proxy Container Log
proxy logs
Process Proxy Logs
Proxy Logs
webUI Interface (admin)
/
/about
/config
/auth/register
/auth/login/
/auth/dashboard
/auth/update_password
/auth/settings
webUI Interface (Application)
HTTP
/admin/view
/admin/edit
view and modify services settings from config/services.ini
/docker/update_config
/docker/display_status
/docker/process_config
/docker/scandir
/docker/start
/docer/start/<url>
503
on-demand restarts
receive request for URL
verify URL valid for service
error if invalid
for each container
if exited, start
check all containers running
redirect user to service
docker.sock

On-Demand Container Resume



Python Application to be containerised

Modular Python Framework with ConfigObj setings persistence

Periodicallly checking services with optional checks

Configurable Check : Containers

Configurable Check: Proxy Logs

Configurable Check: Proxy Container

Development Setup

QuickStart

- [ ] create the folder for your compose file
- [ ] create the compose file
  - [ ] add in any log paths to map under /config/proxy_logs volume
  - [ ] add a mount to the docker socke

docker-compose.yml

```
services:
  docker_automation:
    image: pknw1/docker_automation
    container_name: docker_automation
    environment:
      - VIRTUAL_HOST=docker_automation.tld.com
      - VIRTUAL_PORT=5000
      - TZ=Europe/Paris
    ports:
      - 0.0.0.0:5555:5000
    networks:
      - proxy
      - admin
    volumes:
      - ./config:/config
      - /var/log/npm:/config/proxy_logs/npm
      - /etc/localtime:/etc/localtime:ro
      - /var/run/docker.sock:/var/run/docker.sock
    restart: unless-stopped

networks:
  proxy:
    external: true
  admin:
    external: true
```

☐ create config/app.ini from example

config/app.ini

```
[config]
app_name=Docker Automation
logs_folder=config/proxy_logs/
logs_folder_postfix=access.log
log_file=config/app_logs/docker_automation.log
check_containers_interval=30
proxy_logs_timeformat=%d/%b/%Y:%H:%M:%S +0000
proxy_container_timeformat=%d/%b/%Y:%H:%M:%S +0000

[admin]
username=admin
admin_api_key=1234

[www]
home=enabled

[ntfy_notifications]
enabled=true
topic="channel"
```

☐ create config/services.ini basic from example

config/services.ini

```
[bookstack]
enabled = true
name = Bookstack
info = Info
max_idle = 60
```

```
checks = container, proxy_logs, proxy_container, all_logs
proxy_container = internal_proxy,
containers = bookstack, bookstack-mysql
urls = bookstack.notflix.pknw1.co.uk, bookstack.admin.pknw1.co.uk
proxy_logs = proxymanager/proxy-host-77_access.log,proxymanager-admin/proxy-host-
3_access.log

[service-name]
enabled = <true|false>
name = service-name
info = info info info info info info info info info info info info info info info info
max_idle = 99
checks = <container|proxy_logs|proxy_container|all_logs>
proxy_container = <internal_proxy_container_to check STDOUT>,
containers = container_name, container_name2
urls = service.tld.com, service-admin.tld.com
proxy_logs = proxymanager/proxy-host-1_access.log,proxymanager-admin/proxy-host-
1_access.log

[service-name]
enabled = [must be enabled or not - only enabled services will be checked]
name = [service-name]
info = [info displayed on user WebUI]
max_idle = [maximum time (in minutes) that we allow services to show no access/log
activity before we stop containers]
checks = [ checks can be enabled or disabled here]
proxy_container = <internal_proxy_container_to check STDOUT>,
containers = [any containers either required for specific app operarion, or containers
that comprise part of a larger ecosystem]
urls = [any URL that can access the apps]
proxy_logs = [the proxy manager logs to search for activity - the path should be how to
locate the file from the docker /config/proxy_logs folder]
```

☐ start the container with docker compose up -d

```
 * Serving Flask app 'app'
 * Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a
production WSGI server instead.
 * Running on all addresses (0.0.0.0)
 * Running on http://127.0.0.1:5000
 * Running on http://149.202.72.112:5000
Press CTRL+C to quit
 * Restarting with stat
 * Debugger is active!
 * Debugger PIN: 100-852-284
```

- [ ] check app running via http://0.0.0.0:5555

Components

Config Persistence with ConfigObj

Modularised App Framework

Components

Flask WebUI & Authentication

Components

Services WebUI Config Editor/Viewer

Docker Object Functions

External Log Parsing Functions

Data Sources & Checks

- ☐ python docker container object
  - ☑ container.status
  - ☑ container.logs
  - ☐ container.startedAt
  - ☐ conainer.health.log
  - ☐ container.network.settings
- ☐ Active Container Resources
  - ☐ netstat check for active connections to container IP
  - ☐ active process / lsof checks
- ☐ External log file entries
  - ☐ Nginx Proxy Manager
    - ☑ Proxy Host Acccess
    - ☐ Redirection Access
  - ☐ jwilder/nginx-proxy logs
    - ☑ via container.logs()
  - ☐ Caddy
  - ☐ HA Proxy

User Journey