

Guía del Estudiante - Video 4

Configuración de Reverse Proxy con Nginx + SSL

Código utilizado en el video

1. Objetivo

Configurar un reverse proxy con Nginx para exponer los servicios de la infraestructura inteligente de manera segura a través de HTTPS, implementando certificados SSL automáticos con Let's Encrypt y proporcionando acceso web estructurado a los reportes de análisis generados por LogInsights.

2. Estructura de Configuración

```
1 /etc/nginx/sites-available/  
2     netdata  
3     moodle  
4     logs  
5 /etc/nginx/sites-enabled/  
6     netdata -> ../sites-available/netdata  
7     moodle -> ../sites-available/moodle  
8     logs -> ../sites-available/logs
```

3. Configuración de Netdata

```
1 # /etc/nginx/sites-available/netdata  
2 upstream netdata_backend {          # recomendado por Netdata  
3     server 127.0.0.1:19999;          # agente Netdata en el host  
4     keepalive 1024;  
5 }  
6  
7 server {  
8     server_name netdata.jsguzman.space;  
9  
10    location / {  
11        proxy_pass          http://netdata_backend;  
12        proxy_set_header    Host $host;  
13        proxy_set_header    X-Real-IP $remote_addr;  
14        proxy_set_header    X-Forwarded-For $proxy_add_x_forwarded_for;  
15        proxy_set_header    X-Forwarded-Proto $scheme;  
16        proxy_http_version  1.1;  
17        proxy_set_header    Connection "";  
18        proxy_buffering     off;      # streaming en tiempo real  
19    }
```

```
20
21     listen 443 ssl; # managed by Certbot
22     ssl_certificate /etc/letsencrypt/live/netdata.jsguzman.space/
23         fullchain.pem; # managed by Certbot
24     ssl_certificate_key /etc/letsencrypt/live/netdata.jsguzman.space/
25         privkey.pem; # managed by Certbot
26     include /etc/letsencrypt/options-ssl-nginx.conf; # managed by
27         Certbot
28     ssl_dhparam /etc/letsencrypt/ssl-dhparams.pem; # managed by Certbot
29 }
30
31 server {
32     if ($host = netdata.jsguzman.space) {
33         return 301 https://$host$request_uri;
34     } # managed by Certbot
35
36     listen 80;
37     server_name netdata.jsguzman.space;
38     return 404; # managed by Certbot
39 }
```

Listing 1: Configuración del reverse proxy para Netdata (/etc/nginx/sites-available/netdata)

4. Configuración de Moodle

```

1 # /etc/nginx/sites-available/moodle
2 upstream moodle_backend {
3     server 127.0.0.1:8080; # contenedor bitnami/moodle
4 }
5
6 server {
7     server_name moodle.jsguzman.space;
8
9     location / {
10         proxy_pass          http://moodle_backend;
11         proxy_set_header    Host $host;
12         proxy_set_header    X-Real-IP $remote_addr;
13         proxy_set_header    X-Forwarded-For $proxy_add_x_forwarded_for;
14         proxy_set_header    X-Forwarded-Proto $scheme;
15         client_max_body_size 100M; # ajusta seg n tus necesidades
16     }
17
18     listen 443 ssl; # managed by Certbot
19     ssl_certificate /etc/letsencrypt/live/moodle.jsguzman.space/
20         fullchain.pem; # managed by Certbot
21     ssl_certificate_key /etc/letsencrypt/live/moodle.jsguzman.space/
22         privkey.pem; # managed by Certbot
23     include /etc/letsencrypt/options-ssl-nginx.conf; # managed by
24         Certbot
25     ssl_dhparam /etc/letsencrypt/ssl-dhparams.pem; # managed by Certbot
26 }
27
28 server {
29     if ($host = moodle.jsguzman.space) {
30         return 301 https://$host$request_uri;
31     } # managed by Certbot
32
33     listen 80;
34     server_name moodle.jsguzman.space;
35     return 404; # managed by Certbot
36 }

```

Listing 2: Configuración del reverse proxy para Moodle (/etc/nginx/sites-available/moodle)

5. Configuración de Logs

```

1 # /etc/nginx/sites-available/logs
2 server {
3     listen 80;
4     server_name logs.jsguzman.space;
5     return 301 https://$host$request_uri;
6 }
7
8 server {
9     listen 443 ssl;
10    server_name logs.jsguzman.space;
11    root /var/lib/docker/volumes/tesis-epn_log_reports/_data;

```

```
12     charset utf-8;
13
14     location / {
15         autoindex on;
16         autoindex_exact_size off;
17         autoindex_localtime on;
18         charset utf-8;
19     }
20
21     sendfile off;
22     ssl_certificate /etc/letsencrypt/live/logs.jsguzman.space/fullchain.
    pem;
23     ssl_certificate_key /etc/letsencrypt/live/logs.jsguzman.space/
    privkey.pem;
24     include /etc/letsencrypt/options-ssl-nginx.conf;
25     ssl_dhparam /etc/letsencrypt/ssl-dhparams.pem;
26 }
```

Listing 3: Configuración del servidor de archivos para reportes (/etc/nginx/sites-available/logs)

6. Comandos de Gestión

6.1. Validación y Recarga de Configuración

```
1  # Verificar sintaxis de configuraci n de Nginx
2  sudo nginx -t
3
4  # Recargar configuraci n sin interrumpir el servicio
5  sudo systemctl reload nginx
```

Listing 4: Comandos para validar y aplicar configuración

6.2. Comandos Adicionales de Gestión

```
1  # Verificar estado del servicio Nginx
2  sudo systemctl status nginx
3
4  # Reiniciar Nginx completamente (si es necesario)
5  sudo systemctl restart nginx
6
7  # Ver logs de error de Nginx
8  sudo tail -f /var/log/nginx/error.log
9
10 # Ver logs de acceso
11 sudo tail -f /var/log/nginx/access.log
12
13 # Habilitar sitios (crear enlaces simbólicos)
14 sudo ln -s /etc/nginx/sites-available/netdata /etc/nginx/sites-enabled/
15 sudo ln -s /etc/nginx/sites-available/moodle /etc/nginx/sites-enabled/
16 sudo ln -s /etc/nginx/sites-available/logs /etc/nginx/sites-enabled/
17
18 # Deshabilitar sitios (eliminar enlaces simbólicos)
19 sudo rm /etc/nginx/sites-enabled/netdata
```

```

20 sudo rm /etc/nginx/sites-enabled/moodle
21 sudo rm /etc/nginx/sites-enabled/logs
22
23 # Verificar configuraci n SSL
24 sudo certbot certificates
25
26 # Renovar certificados SSL manualmente
27 sudo certbot renew

```

Listing 5: Comandos complementarios de administración

7. Estructura de Archivos SSL

```

1 /etc/letsencrypt/live/
2     netdata.jsguzman.space/
3         fullchain.pem
4         privkey.pem
5         cert.pem
6         chain.pem
7     moodle.jsguzman.space/
8         fullchain.pem
9         privkey.pem
10        cert.pem
11        chain.pem
12    logs.jsguzman.space/
13        fullchain.pem
14        privkey.pem
15        cert.pem
16        chain.pem

```

Listing 6: Ubicación de certificados SSL generados por Certbot

8. URLs de Acceso

```

1 # Servicios expuestos
2 https://netdata.jsguzman.space      # Dashboard de monitoreo Netdata
3 https://moodle.jsguzman.space      # Plataforma LMS Moodle
4 https://logs.jsguzman.space        # Navegador de reportes LogInsights
5
6 # Redirecciones autom ticas HTTP -> HTTPS
7 http://netdata.jsguzman.space      # Redirige a HTTPS
8 http://moodle.jsguzman.space      # Redirige a HTTPS
9 http://logs.jsguzman.space        # Redirige a HTTPS

```

Listing 7: Endpoints configurados

9. Configuración de Seguridad

```

1 # Contenido de /etc/letsencrypt/options-ssl-nginx.conf
2 # (Gestionado autom ticamente por Certbot)
3

```

```
4 ssl_session_cache shared:le_nginx_SSL:10m;
5 ssl_session_timeout 1440m;
6 ssl_session_tickets off;
7
8 ssl_protocols TLSv1.2 TLSv1.3;
9 ssl_prefer_server_ciphers off;
10
11 ssl_ciphers "ECDHE-ECDSA-AES128-GCM-SHA256:ECDHE-RSA-AES128-GCM-SHA256:
    ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-RSA-AES256-GCM-SHA384:ECDHE-ECDSA
    -CHACHA20-POLY1305:ECDHE-RSA-CHACHA20-POLY1305:DHE-RSA-AES128-GCM-
    SHA256:DHE-RSA-AES256-GCM-SHA384";
```

Listing 8: Parámetros de seguridad SSL aplicados automáticamente