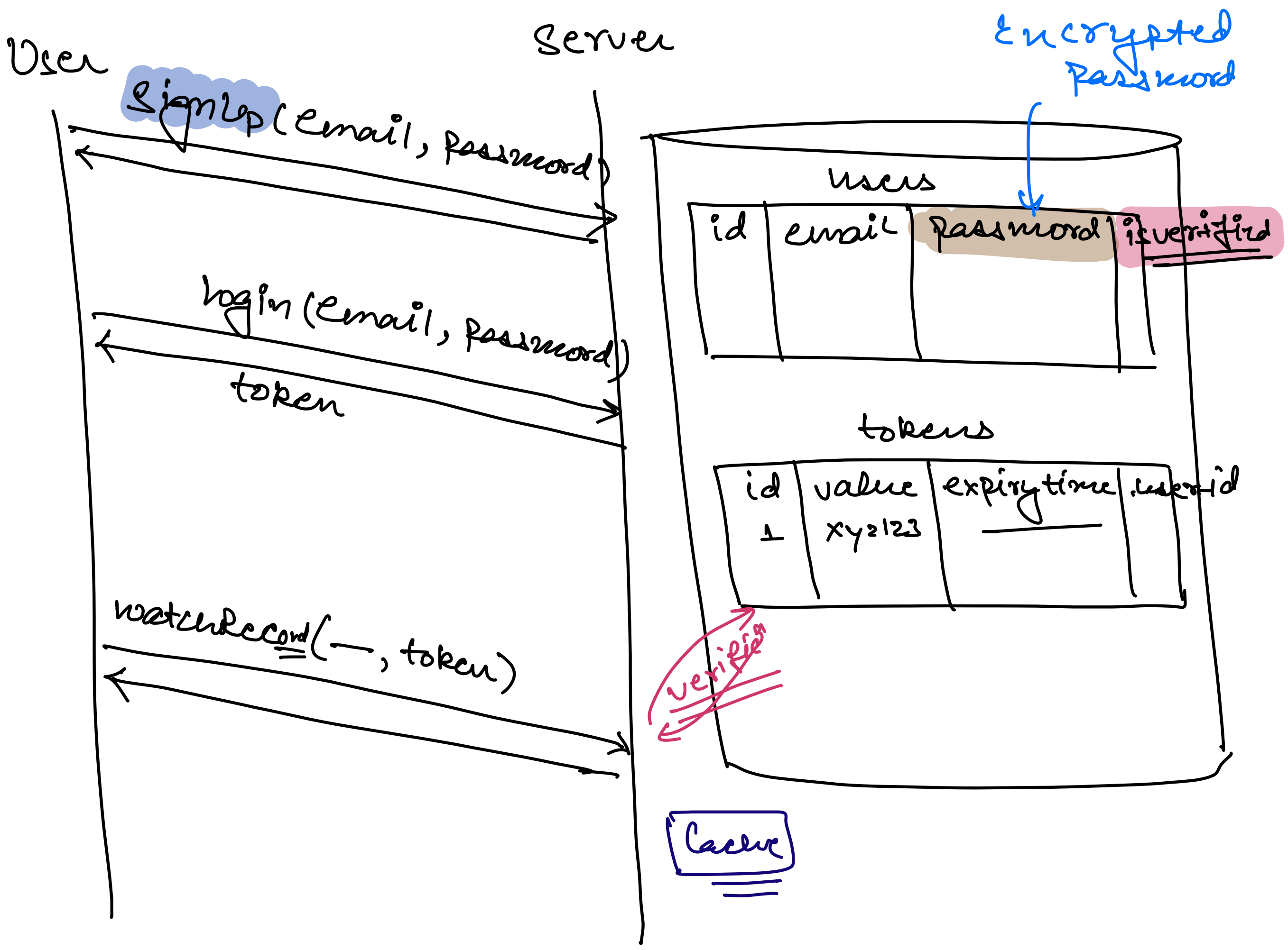
Agenda.

→ JWT

→ OAuth

→ Implementing UserService.

⇒



⇒ DB Call is required to validate the token.

⇒ Add extra latency.

⇒ Cache. → High Cost.

→ Cache sync.

⇒ What if we can validate the token without even going to DB. ?

⇓

If token contains all the required information to validate.

⇒ **Self Validating Token**

i) expiry time

ii) user-id

iii) roles

——

——

encoding

base64.

1 → x

2 → y

3 → m

4 → n

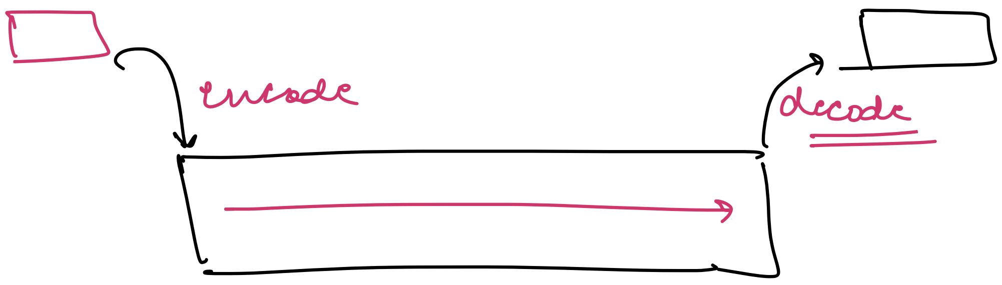
⋮

Hello

↓↓↓↓↓

pqr123

String ⇄ encode



⇒ In the token we want to pass some info

⇒ Base64 Encode.

⇒ JSON.

```
{
    "user-id": "1234",
    "email": "deepak.kasera@scaler.com"
    "expiry": ______
}
```

encode it using base64

token = base64(JSON).

⇒ Can anyone see the token? ✓

⇒ Can anyone tamper the token? ✓

```
validateToken (token) {
    decodedToken = decode(token);
    jsonObj = json.parse (decodedToken);
    expiry_time = jsonObj.get(—);
    role = ______
```

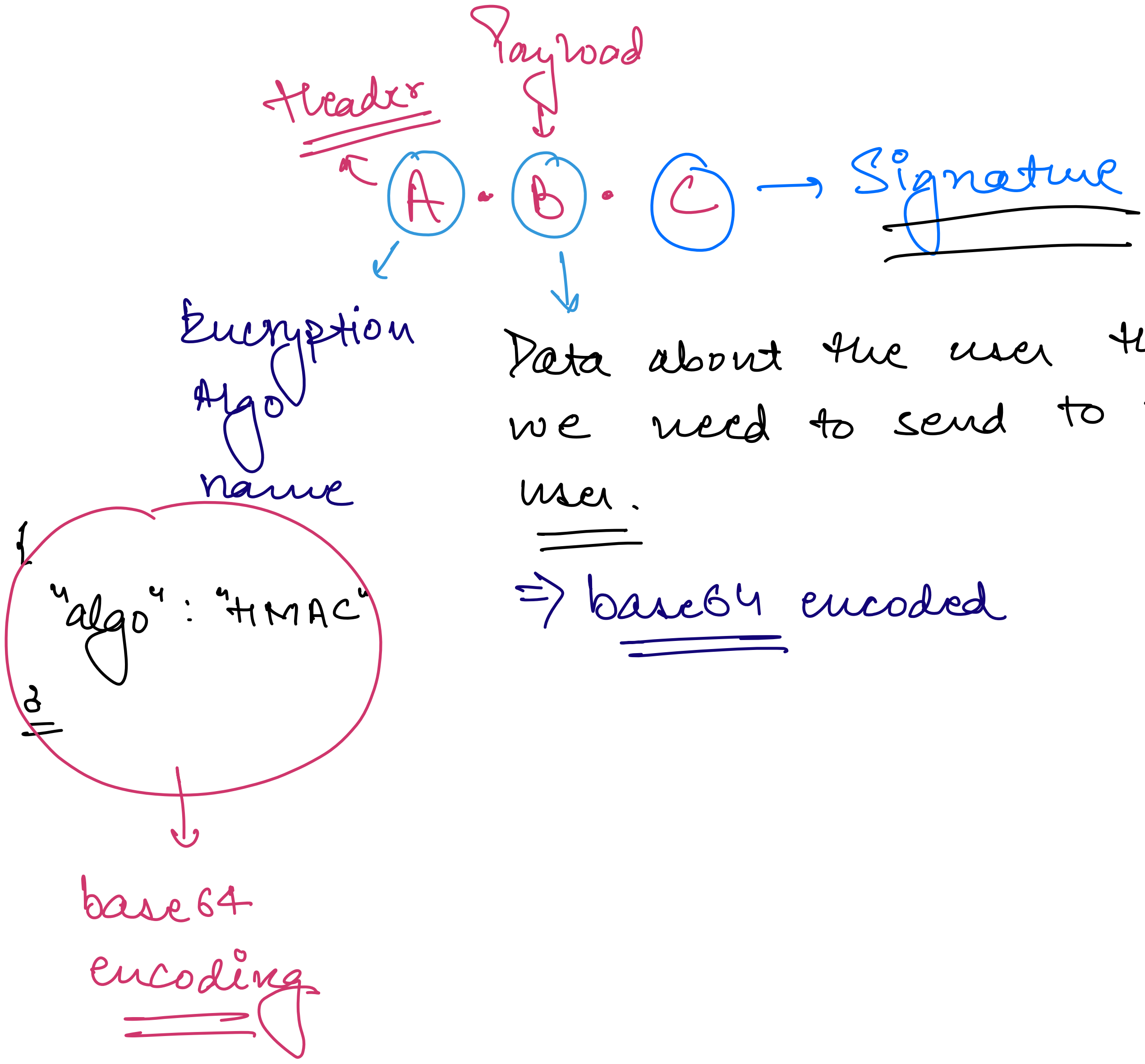
⇒ Self Validating token.

⇒ Encryption ≡ Encoding + Secret key.

- Secret Key

```
login ( email, password) {
    // Verify email & password.
    // generate json
    token = Encrypt (json, secret key)
    return token;
}
```

JWT = JSON Web Token.



Data about the user that we need to send to the user.

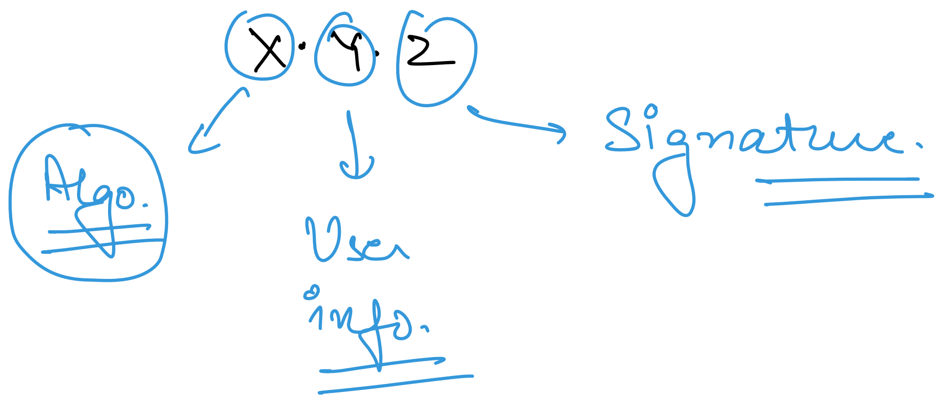
⇒ base64 encoded

- Secret Key

```
login ( email, password ) {
        // Verify email & password.
        // generate json

         B = base64Encode ( json );
                                                        SHA256
         A = base64Encode ( {"algo" : "HMAC" } )

         C = HMAC ( A + B , secret key )
              Encrypted

         token = A · B · C

         return token;

}
```

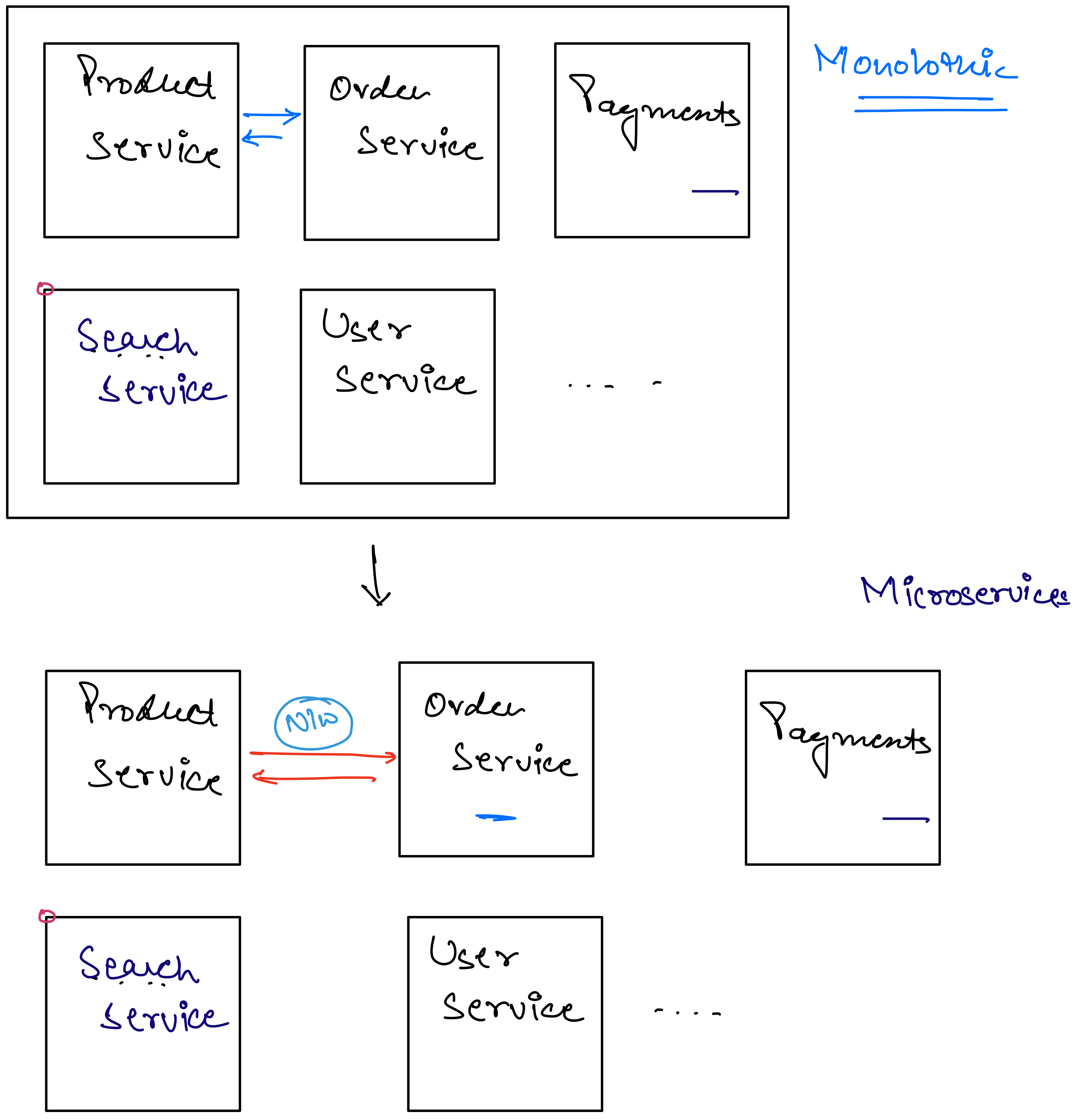
```
                                         input.
- Secret key
Validate Token ( token ) {                              encrypt
Algo X, Y, Z = token.split (".")                           ↓
                                                        decrypt.
      D = decrypt ( Z, secret key )
      { if (decryption faild) {
              return false;
      }
       return true; // token is valid.
}
```

⇒



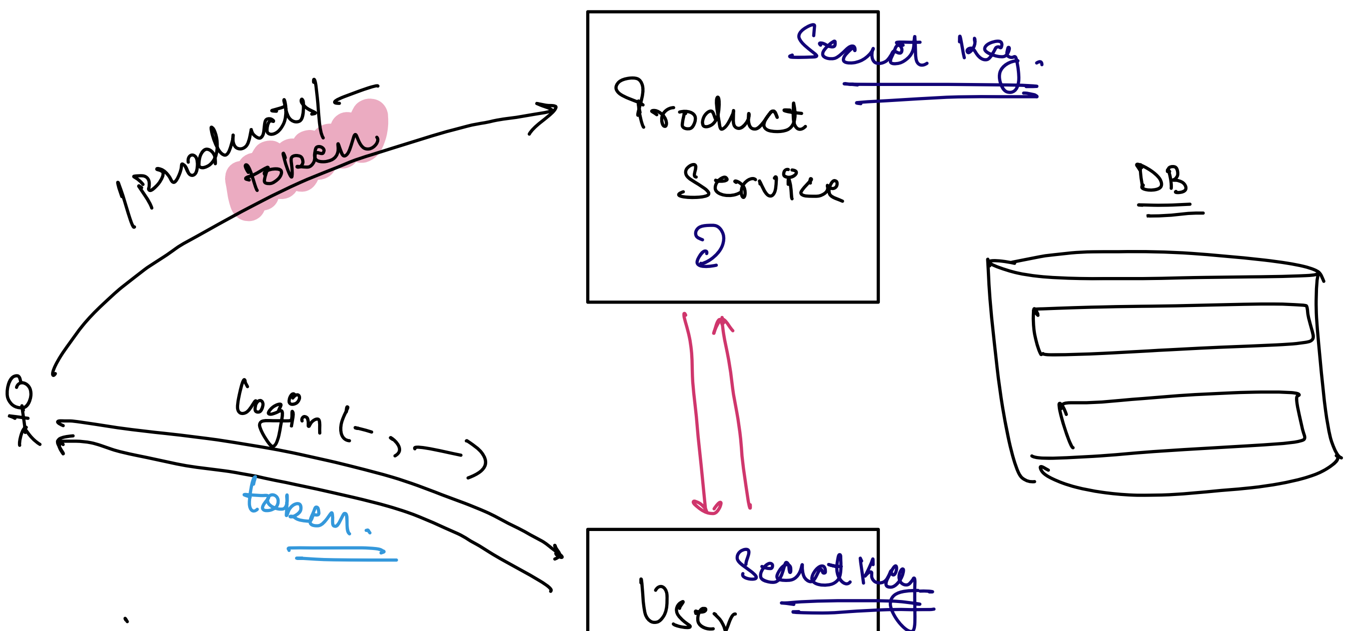
X · Y · Z
Algo.
User info.
Signature.

⇒



Product Service
Order Service
Payments
Search Service
User Service
. . . .
Monolithic
Microservices
Product Service
N/W
Order Service
Payments
Search Service
User Service
. . . .

⇒ Selective Scaling ✓



⇒ OAuth

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