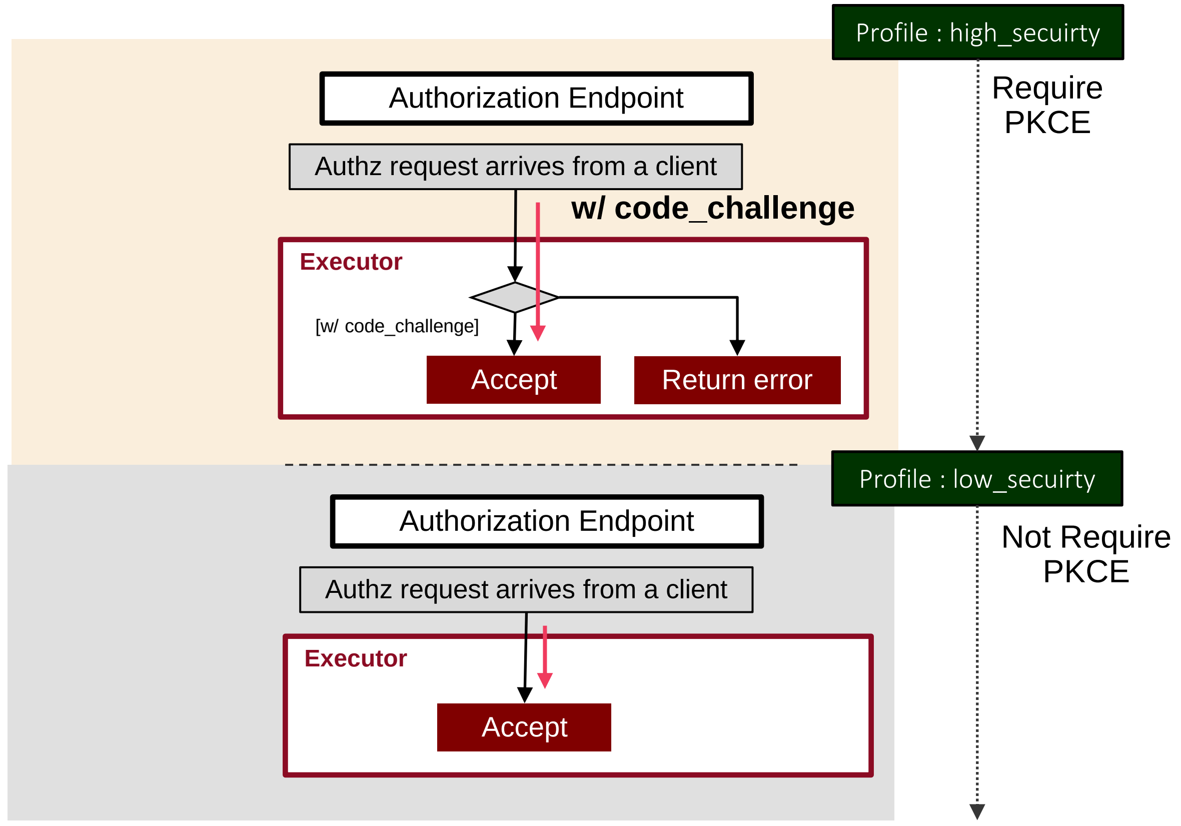
For keycloak FAPI-SIG

Aug 2021

Client Policies Revised

Objectives

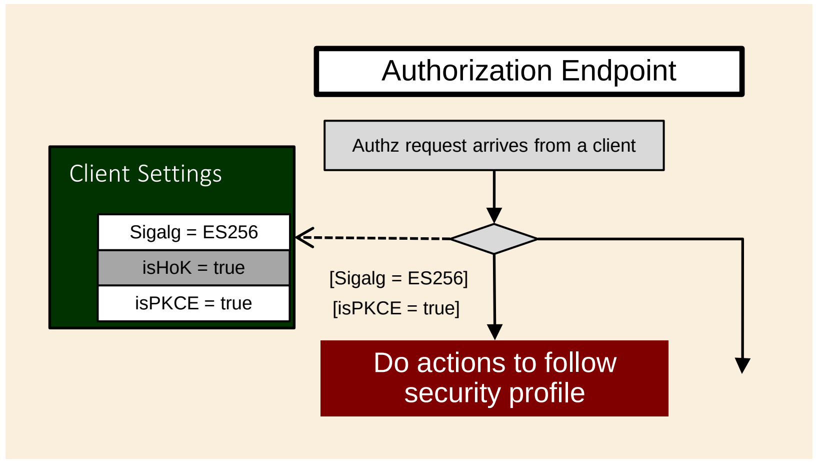


Current client policies have some limitation on dynamically changing security profiles per client request.

Client Policies Revised tries to get rid of this limitation.

To do so, client policies does not rely on client settings as much as possible.

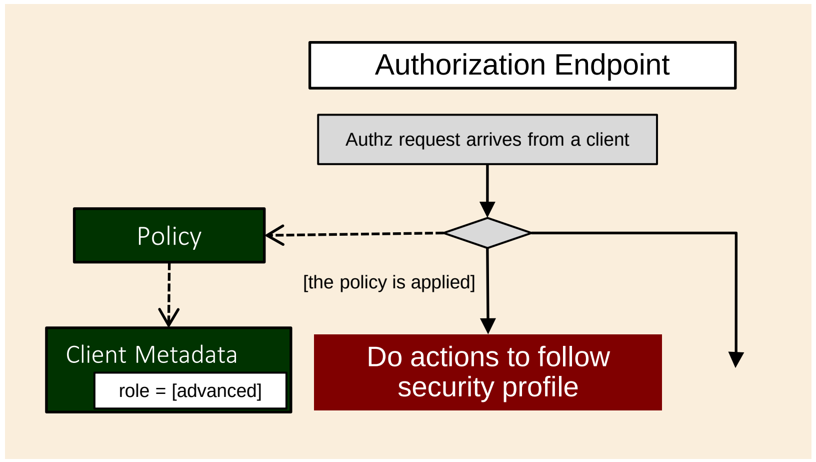
Settings vs Policies : Way of executing security profile related actions



[By Settings]

By referring values of client settings, determine whether security profile related actions and checks are executed.

- leverages existing logics.

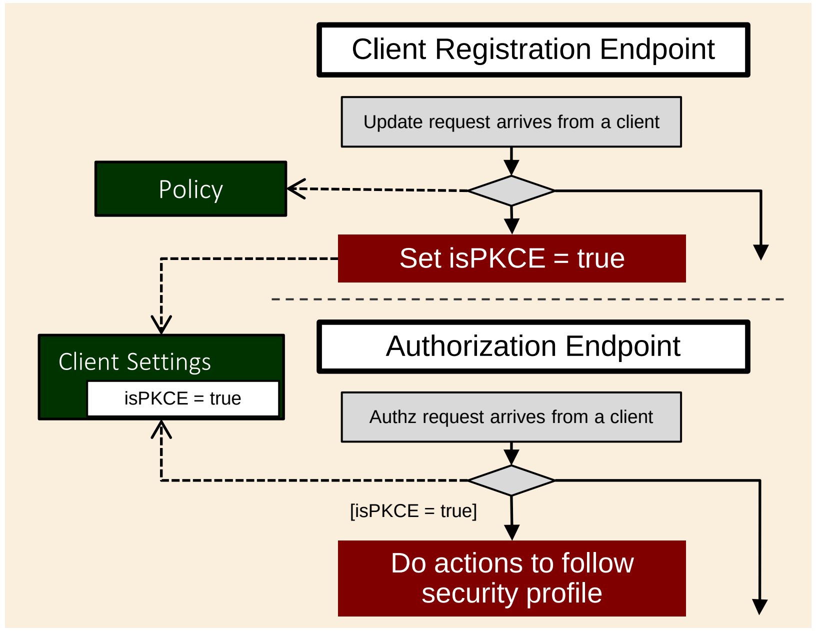


[By Policies]

By evaluating a policy, determine whether security profile related actions and checks are executed.

- change security profiles dynamically and flexibly.

Current Client Policies : Executor Type

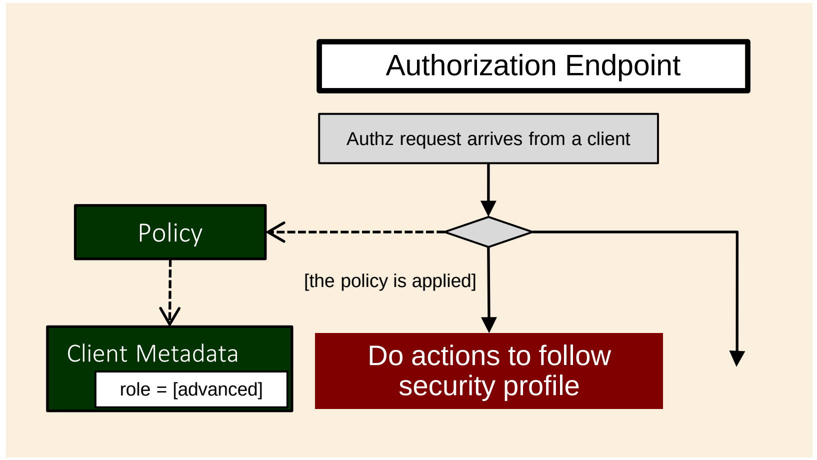

Client Registration Endpoint
Update request arrives from a client
Policy
Set isPKCE = true
Client Settings
isPKCE = true
Authorization Endpoint
Authz request arrives from a client
[isPKCE = true]
Do actions to follow security profile

[Type A : Enforce/Check Client Settings]

Enforce/check client settings on only client registration/update requests.

It does not work on other endpoints.

- leverages existing logics.



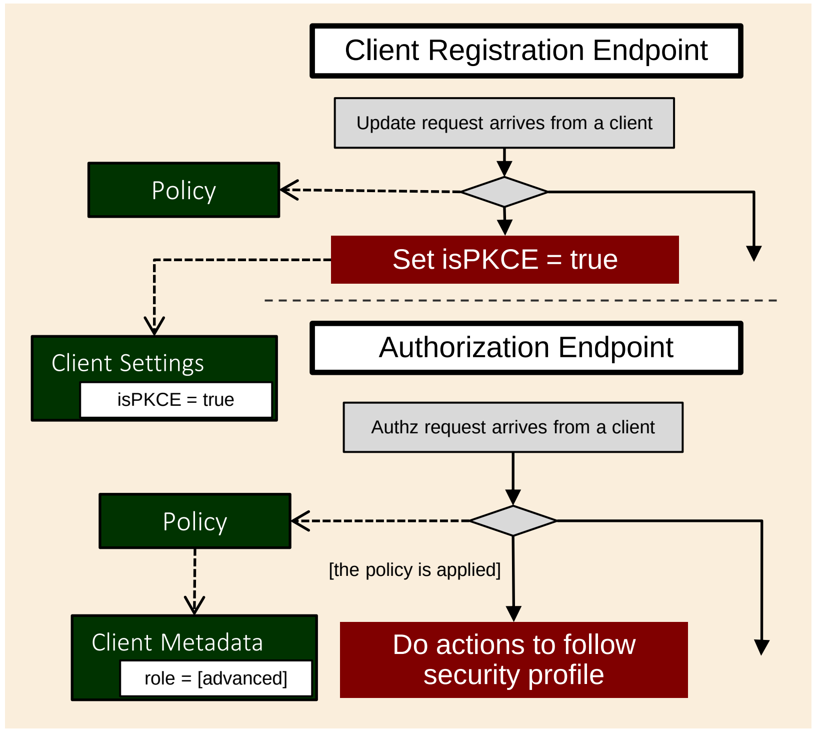
[Type B : Check on Runtime]

Do security profile related actions and checks on every requests from clients to endpoints.

- execute regardless of client settings.

PROPOSED DRAFT

Current Client Policies : Executor Type


Client Registration Endpoint
Update request arrives from a client
Policy
Set isPKCE = true
Client Settings
isPKCE = true
Authorization Endpoint
Authz request arrives from a client
Policy
[the policy is applied]
Client Metadata
role = [advanced]
Do actions to follow security profile

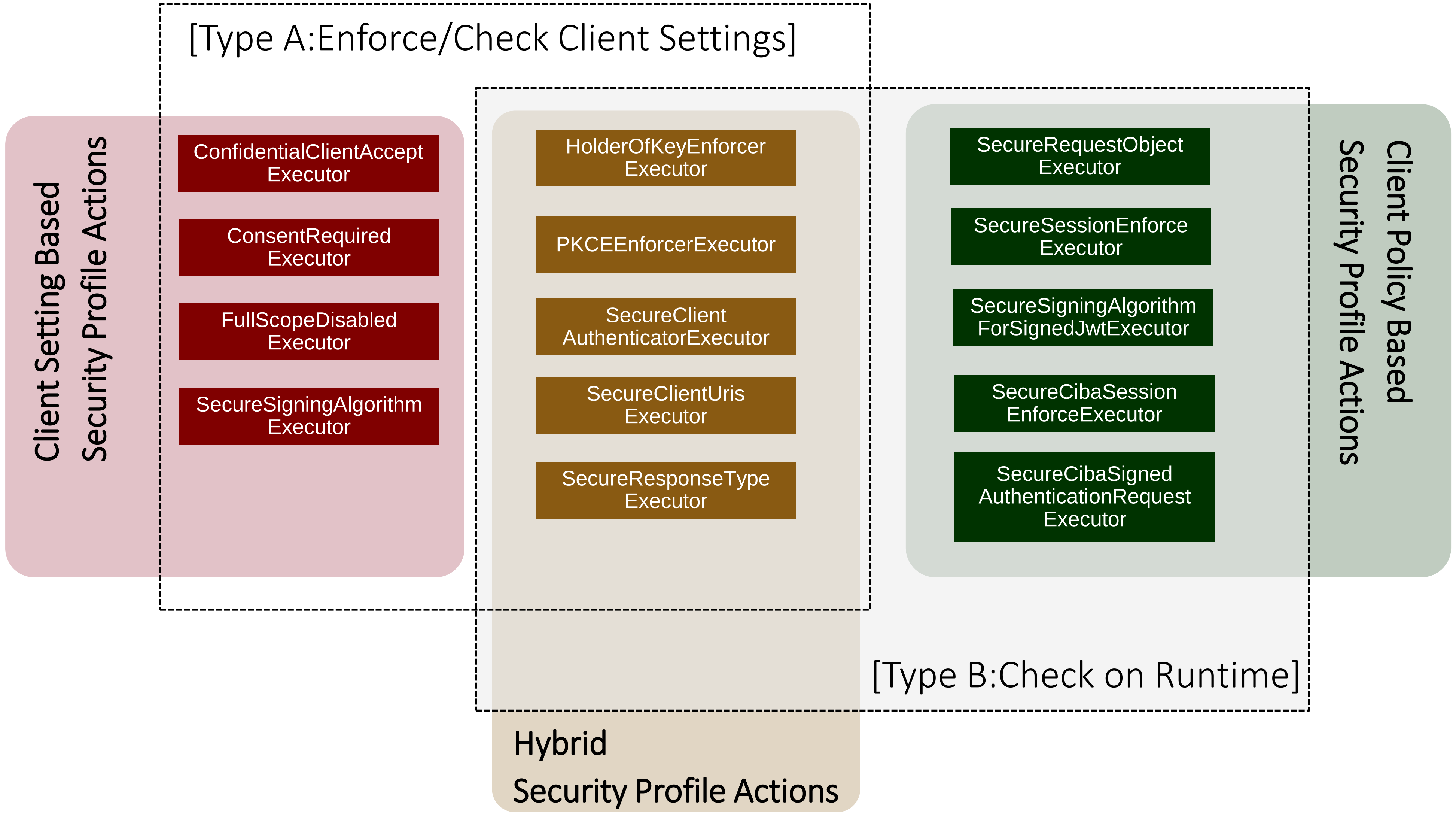
[Type A & B : Hybrid]

Enforce/check client settings on only client registration/update requests.

Do security profile related actions and checks on every requests from clients to endpoints.

PROPOSED DRAFT

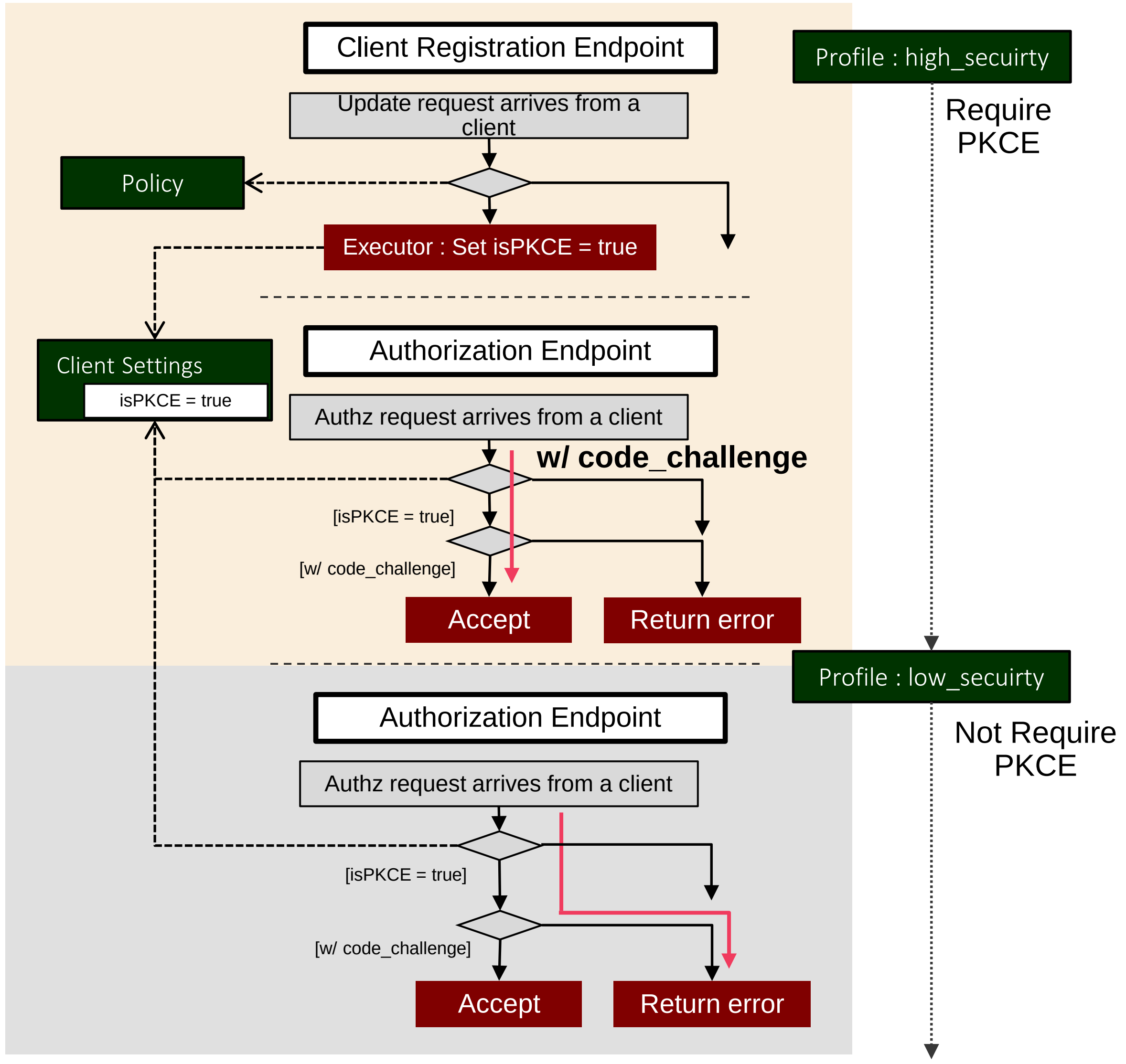
Current Status : Ways of executing security profile



[Type A:Enforce/Check Client Settings]
Client Setting Based Security Profile Actions
ConfidentialClientAccept Executor
ConsentRequired Executor
FullScopeDisabled Executor
SecureSigningAlgorithm Executor
HolderOfKeyEnforcer Executor
PKCEEnforcerExecutor
SecureClient AuthenticatorExecutor
SecureClientUris Executor
SecureResponseType Executor
Hybrid Security Profile Actions
SecureRequestObject Executor
SecureSessionEnforce Executor
SecureSigningAlgorithm ForSignedJwtExecutor
SecureCibaSession EnforceExecutor
SecureCibaSigned AuthenticationRequest Executor
Client Policy Based Security Profile Actions
[Type B:Check on Runtime]

PROPOSED DRAFT

Limitation on dynamic change of security profile : Type A:Enforce/Check Client Settings



By employing the type A executor, some client setting need to be changed when changing security profiles depending on their nature.

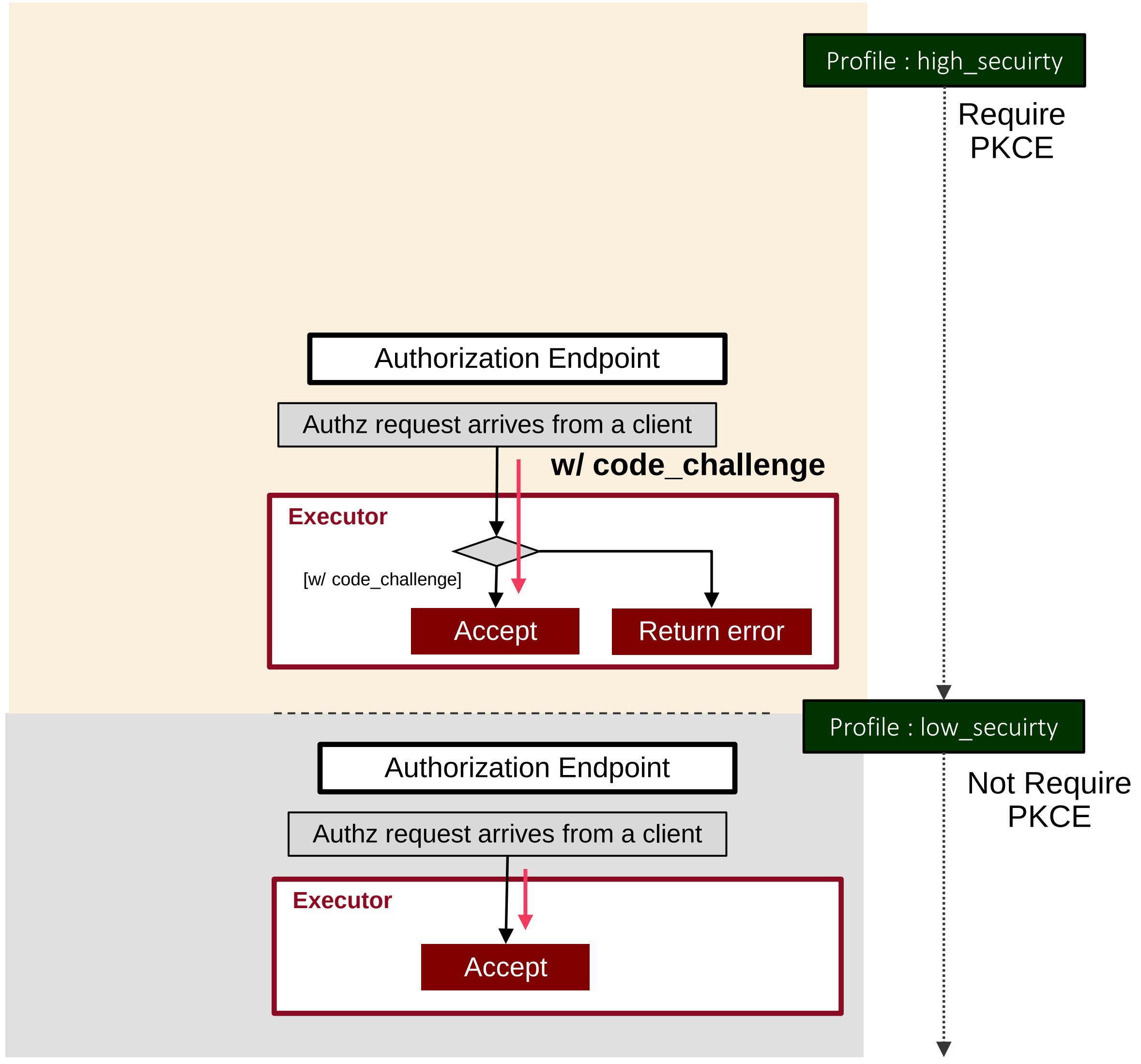
It might be not good if clients want to change applied profiles per request because it enforces them to change their settings whenever sending requests that requires different profile.

E.g.

- Calling API for bank transfer, that required PKCE.
- Calling API for retrieving band account data, that does not require PKCE.

PROPOSED DRAFT

Un-Limitation on dynamic change of security profile : Type B:Check on Runtime



By employing the type B executor, some client setting need **NOT** to be changed when changing security profiles depending on their nature.

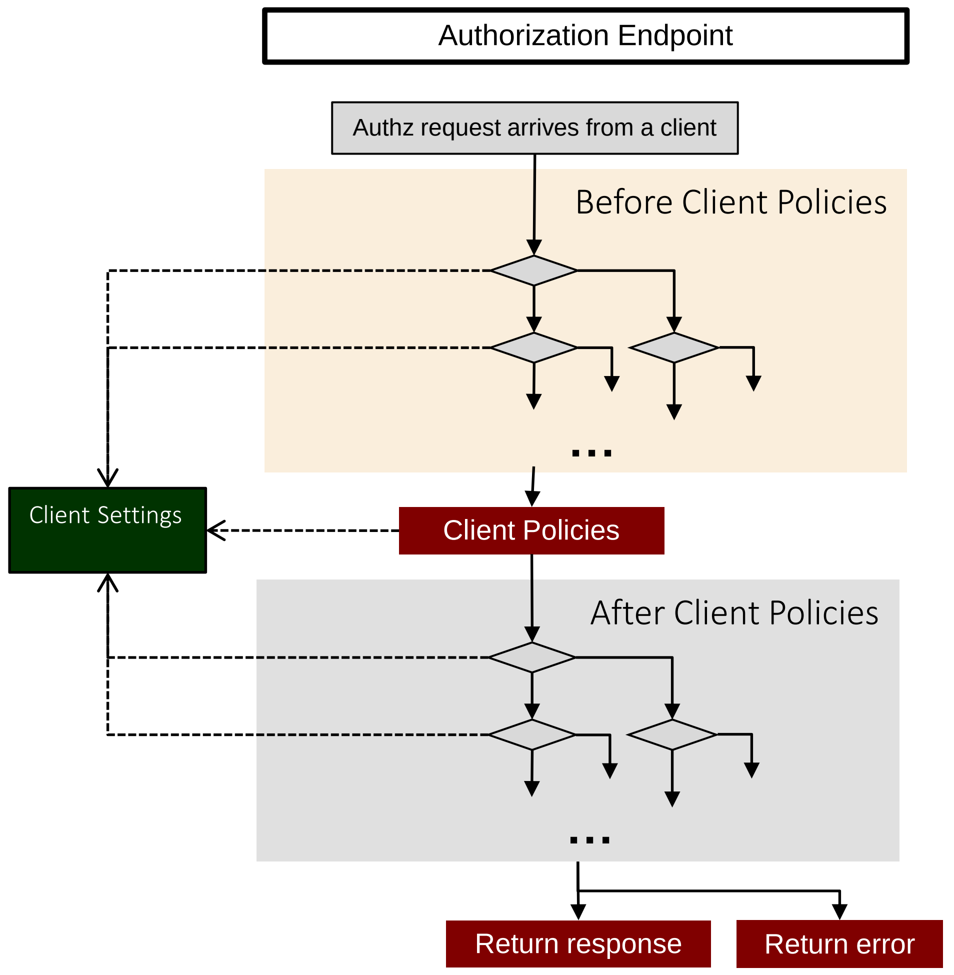
It might be good if clients want to change applied profiles per request because it **DOES NOT** enforce them to change their settings whenever sending requests that requires different profile.

E.g.

- Calling API for bank transfer, that required PKCE.
- Calling API for retrieving band account data, that does not require PKCE.

PROPOSED DRAFT

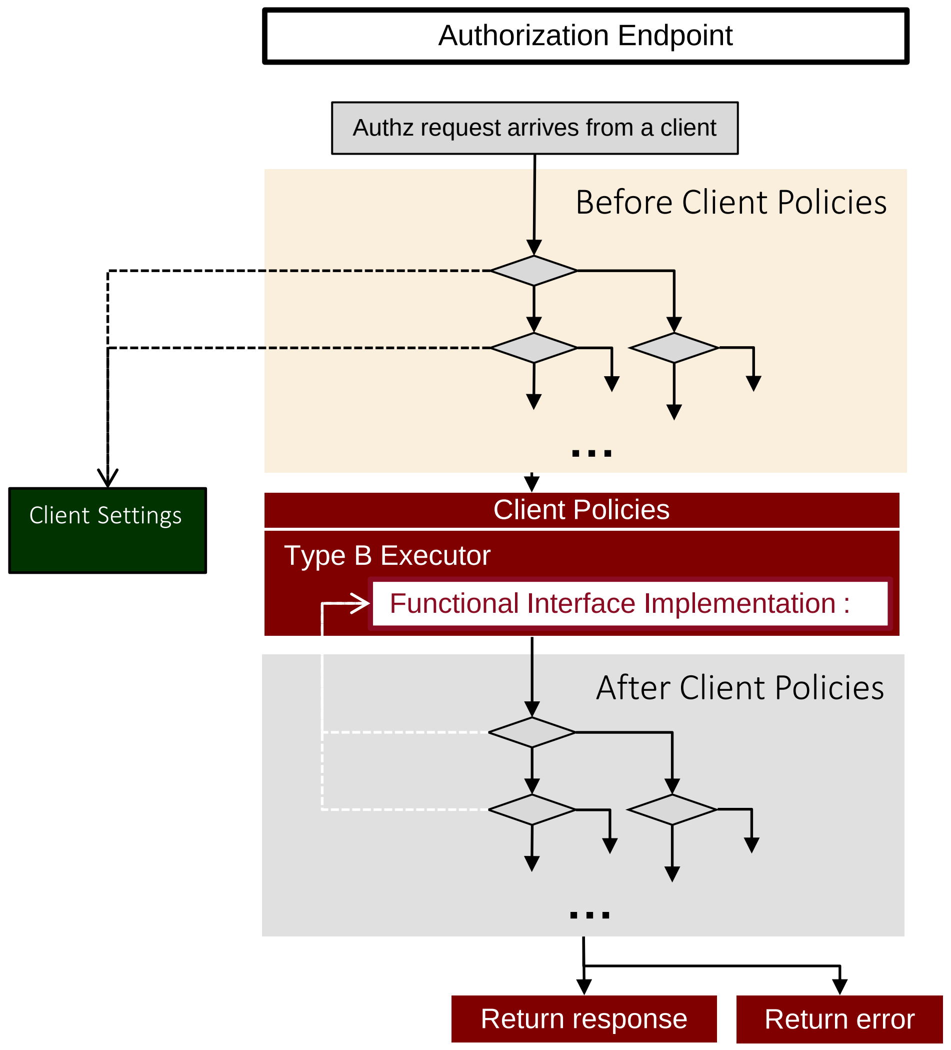
Difficulty : Migrating Type A to Type B Executor



In logics before executing client policies, some point refers client settings on the code path.

In logics after executing client policies, some point refers client settings on the code path.

Difficulty : Migrating Type A to Type B Executor



In logics before executing client policies, some point refers client settings on the code path.

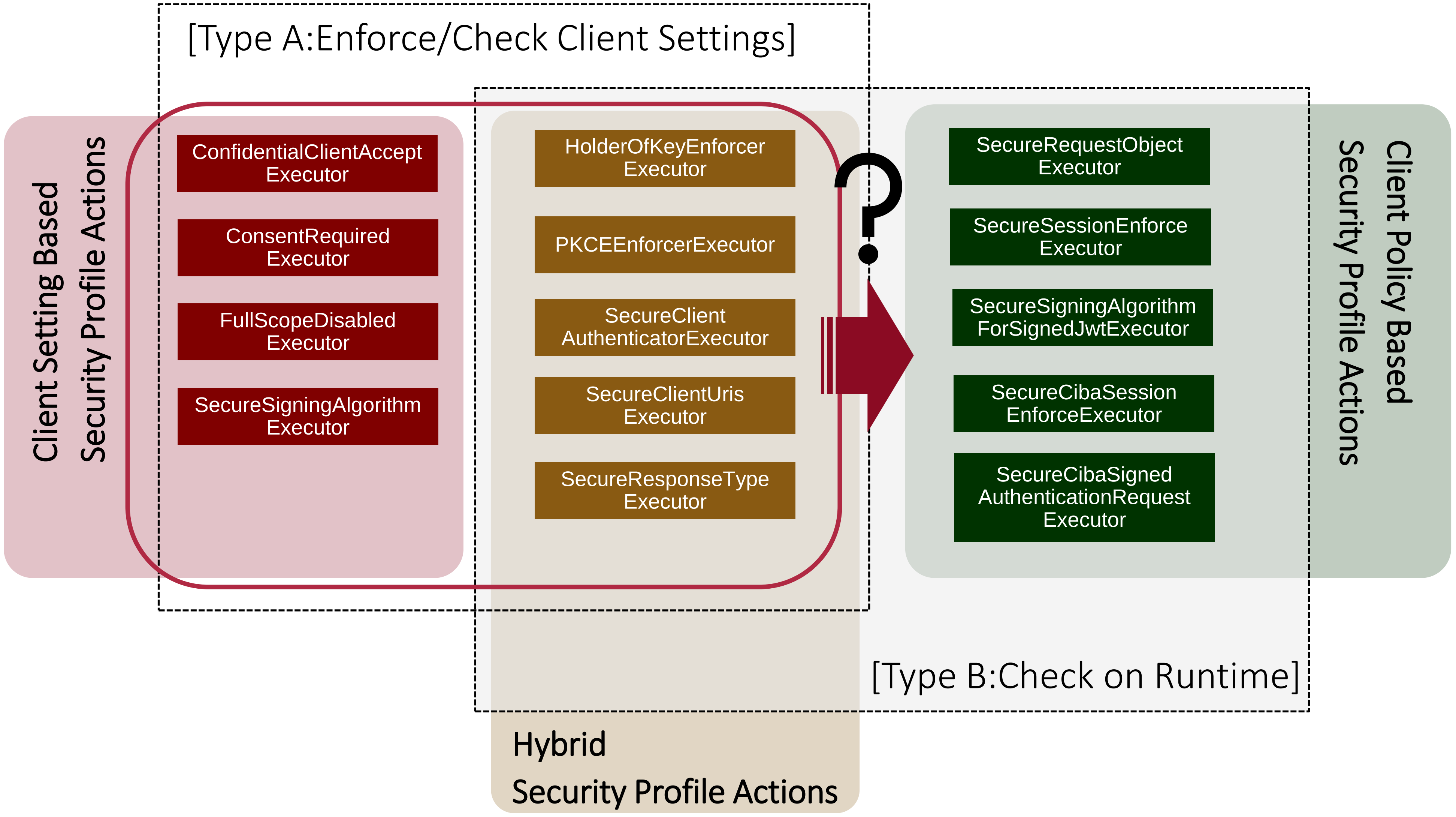
➔ Cannot be treated by type B executor.

In logics after executing client policies, some point refers client settings on the code path.

➔ Can be treated by type B executor :

- Executor includes a functional interface implementation
- In logics after executing client policies, such points refer to this functional interface implementation instead of refer to client settings.

Plan 1 : Policy Oriented


[Type A:Enforce/Check Client Settings]
Client Setting Based
Security Profile Actions
ConfidentialClientAccept Executor
ConsentRequired Executor
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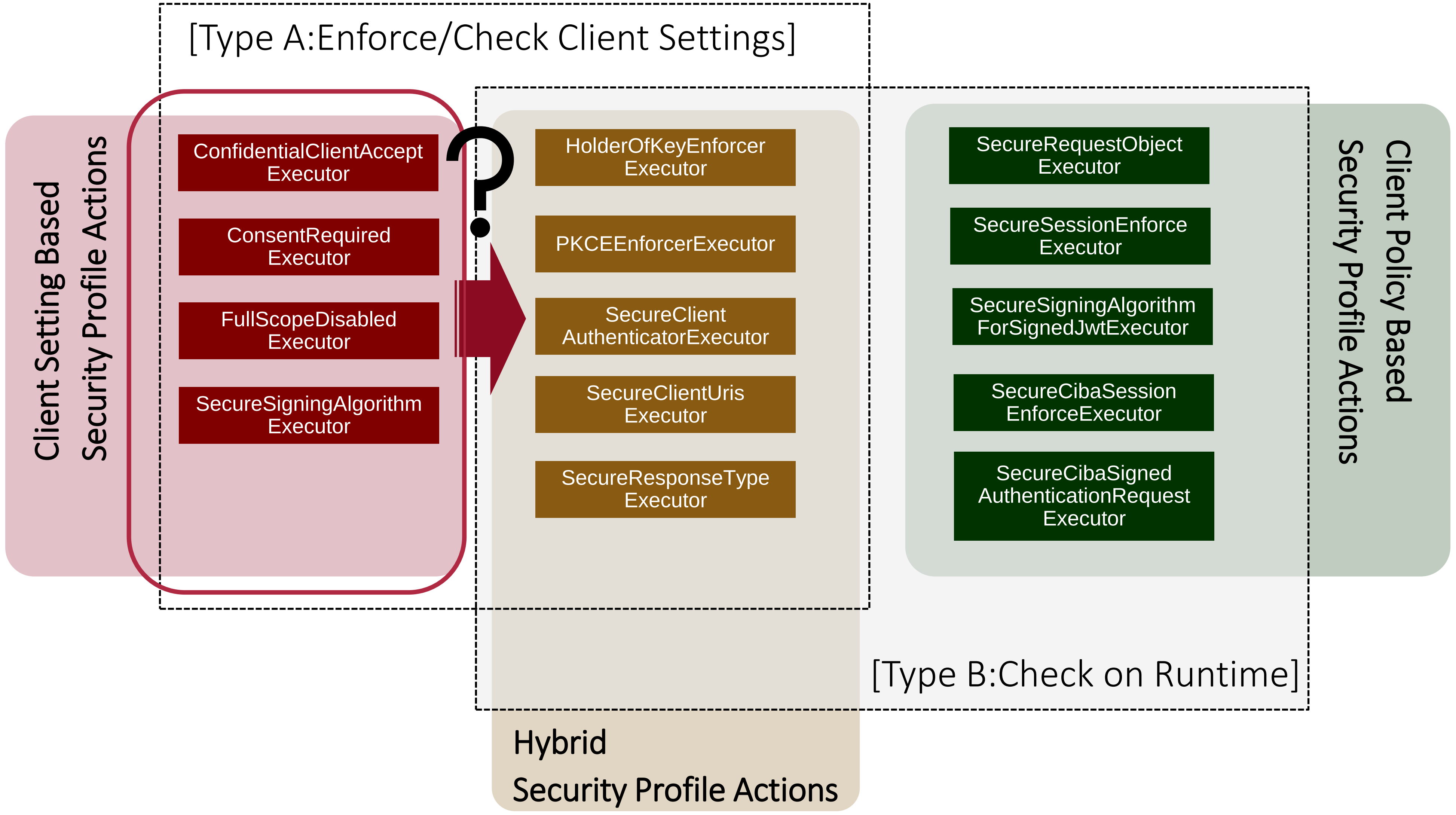
SecureResponseType Executor
?
SecureRequestObject Executor
SecureSessionEnforce Executor
SecureSigningAlgorithm ForSignedJwtExecutor
SecureCibaSession EnforceExecutor
SecureCibaSigned AuthenticationRequest Executor
Client Policy Based
Security Profile Actions
[Type B:Check on Runtime]
Hybrid
Security Profile Actions

PROPOSED DRAFT

Plan 2 : Hybrid Oriented



[Type A:Enforce/Check Client Settings]
Client Setting Based Security Profile Actions
ConfidentialClientAccept Executor
ConsentRequired Executor
FullScopeDisabled Executor
SecureSigningAlgorithm Executor
?
HolderOfKeyEnforcer Executor
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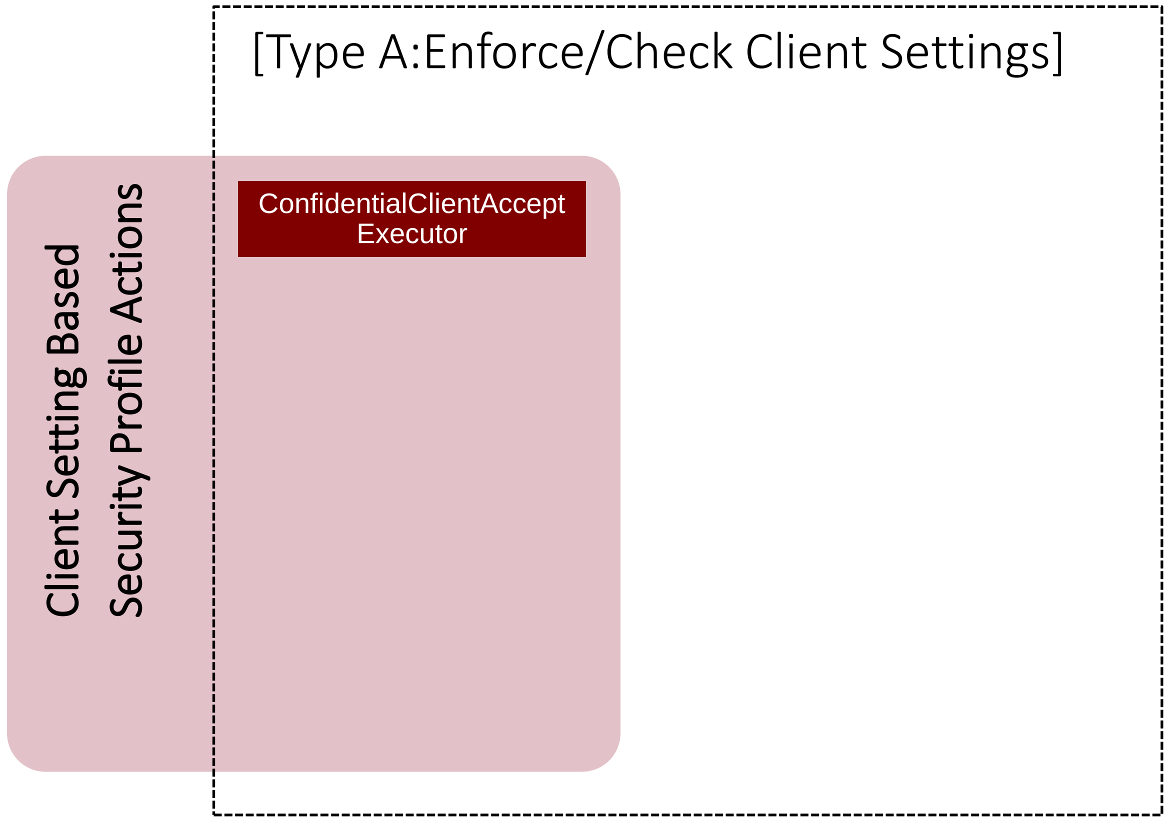
SecureCibaSigned AuthenticationRequest Executor
Client Policy Based Security Profile Actions
[Type B:Check on Runtime]
Hybrid Security Profile Actions

PROPOSED DRAFT

Strategy


[Type A:Enforce/Check Client Settings]
Client Setting Based Security Profile Actions
ConfidentialClientAccept Executor

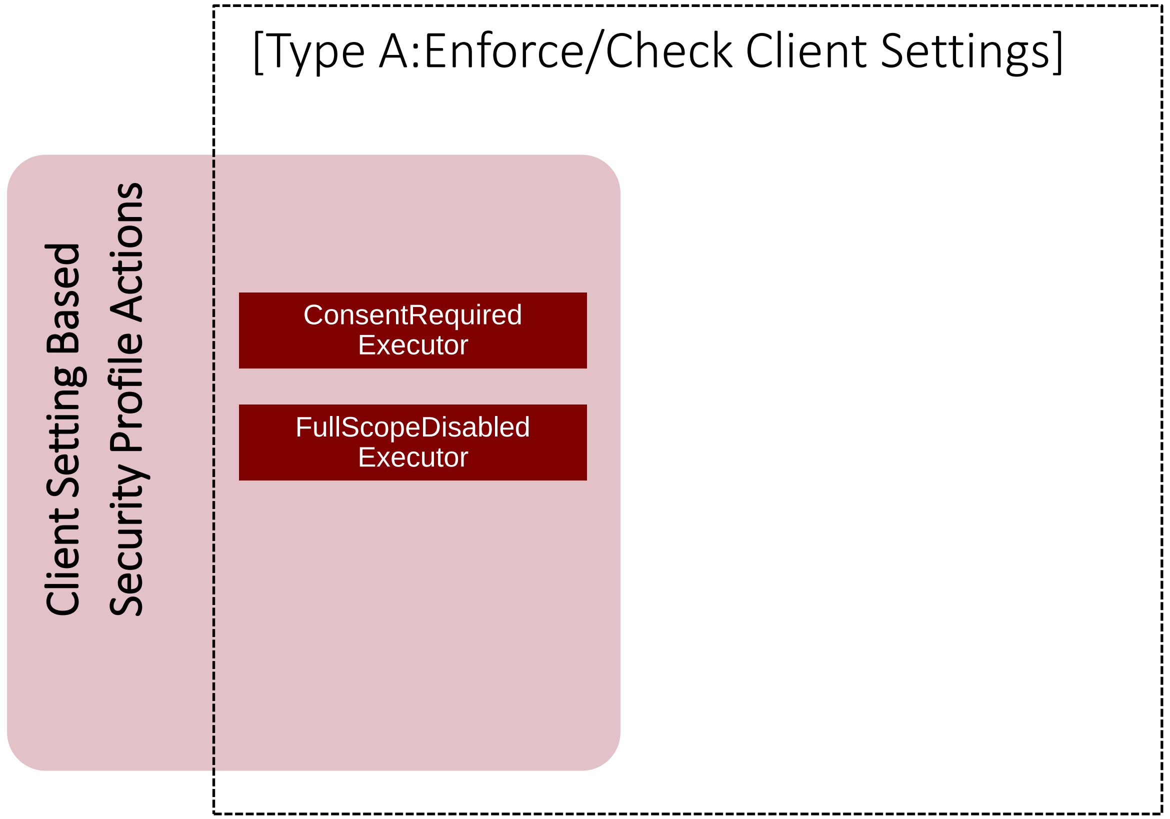
Keep the following executors be type A :

- By its nature, it requires to refer to a client setting because only the content of the request from the client on the endpoint is not adequate to execute its logics.

E.g.

ConfidentialClientAcceptExecutor

Strategy



Keep the following executors be type A :

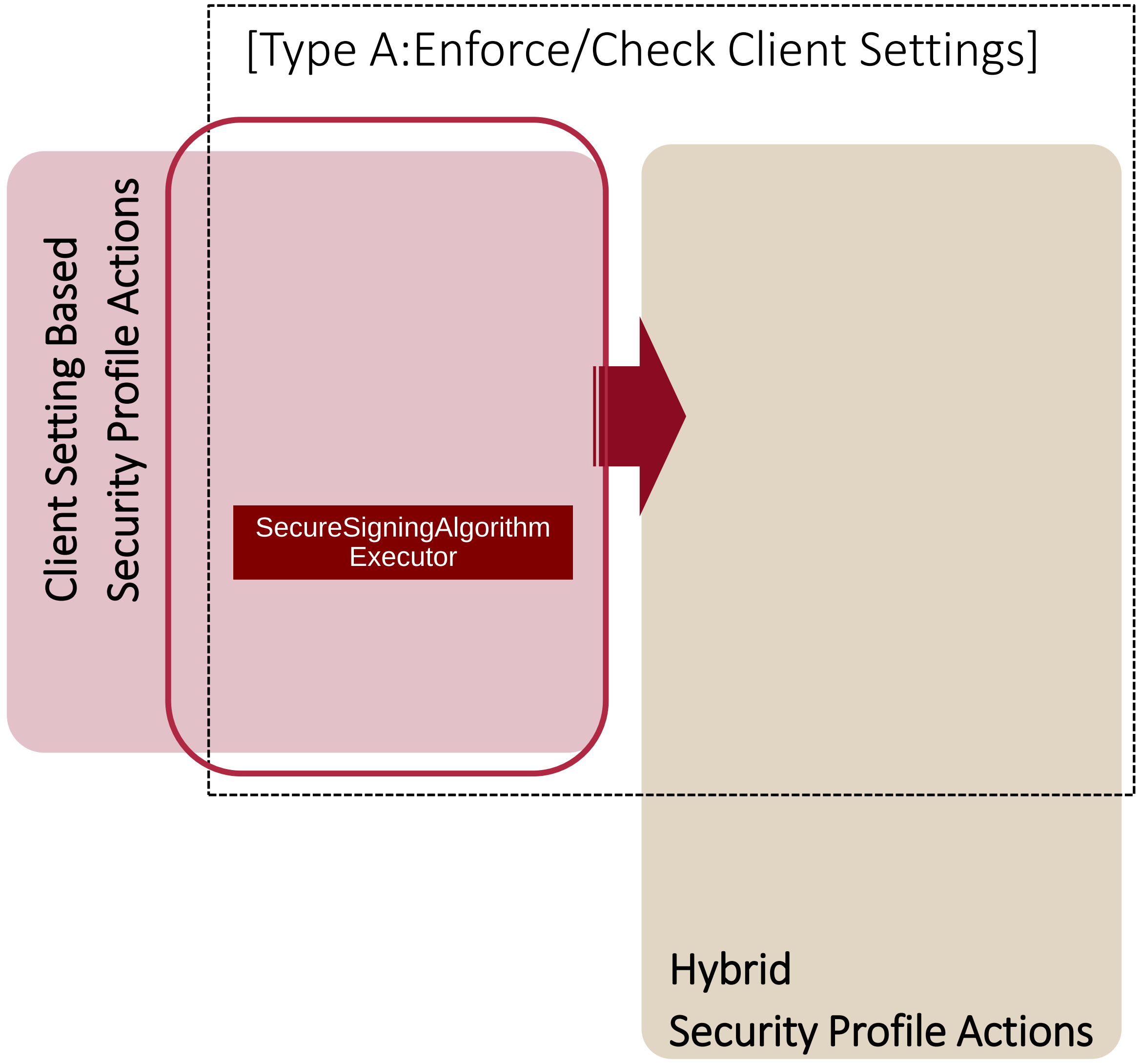
- By its nature, the client settings that the executor treats are referred from several point in the code path too much broad, especially points that are not relevant to endpoints' logic that receives client's requests.

E.g.

ConsentRequiredExecutor

FullScopeDisabledExecutor

Strategy

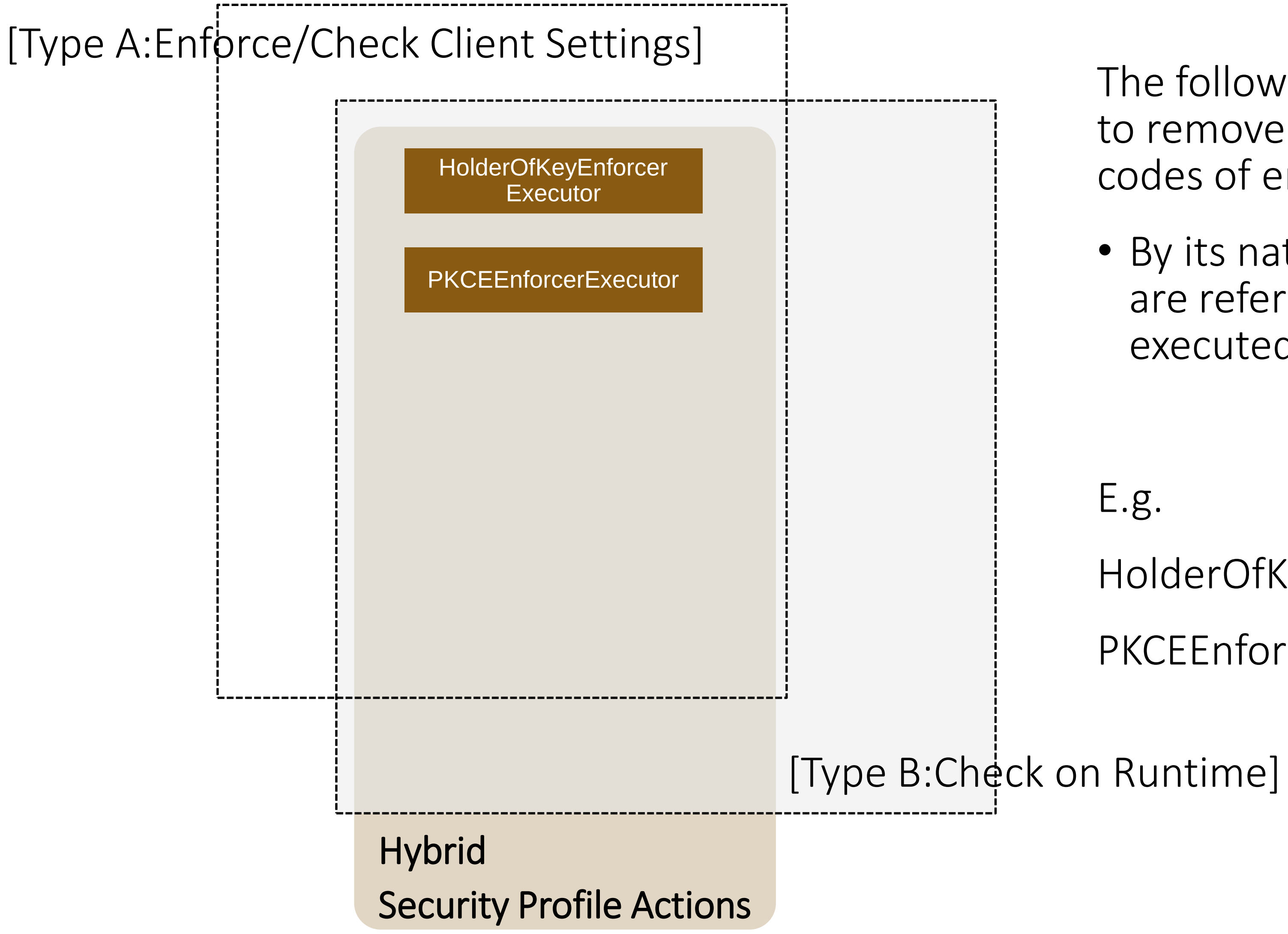


Other type A executors migrated to type A & B by considering backward compatibility.

E.g.

SecureSigningAlgorithmExecutor

Strategy


[Type A:Enforce/Check Client Settings]
HolderOfKeyEnforcer Executor
PKCEEnforcerExecutor
[Type B:Check on Runtime]
Hybrid
Security Profile Actions

The following type B executors needs to be revised to remove logics referring client settings from codes of endpoints:

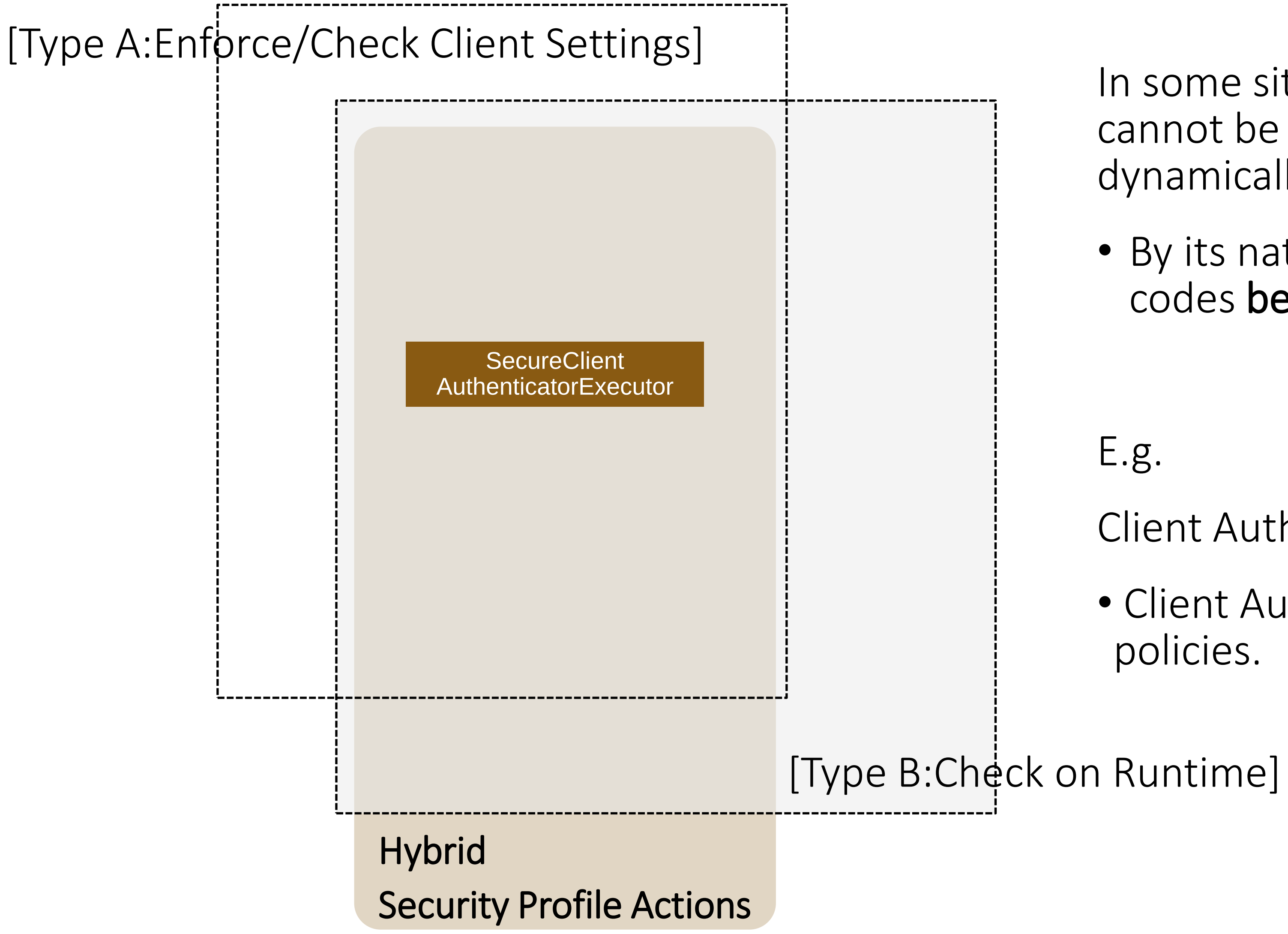
- By its nature, client settings this executor treats are referred from codes after client polices are executed.

E.g.

HolderOfKeyEnforcerExecutor

PKCEEnforcerExecutor

Strategy


[Type A:Enforce/Check Client Settings]
SecureClient AuthenticatorExecutor
[Type B:Check on Runtime]
Hybrid
Security Profile Actions

In some situation, the following client settings cannot be treated by changing profiles dynamically per client's request :

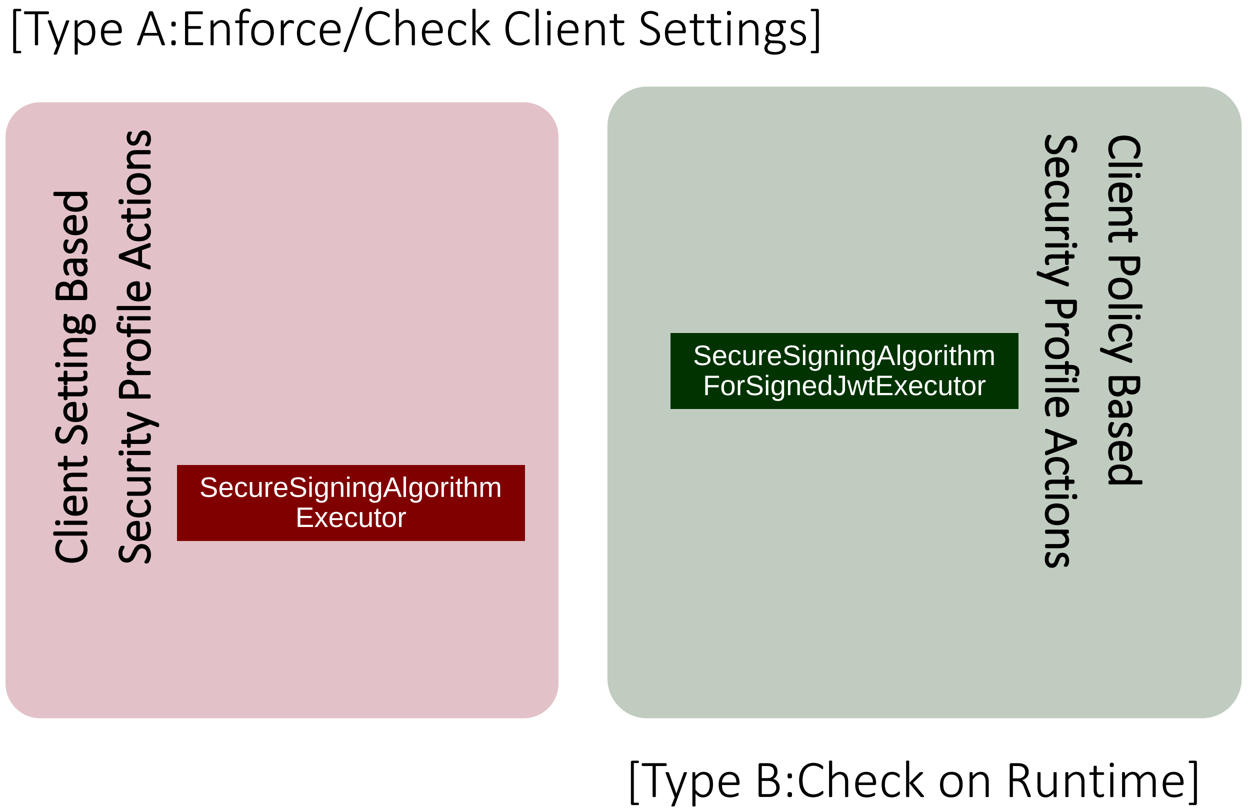
- By its nature, client settings are referred from codes **before** client polices are executed.

E.g.

Client Authenticator Type

- Client Authentication is executed before client policies.

Strategy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SecureSigningAlgorithm ForSignedJwtExecutor
Client Policy Based
Security Profile Actions
[Type B:Check on Runtime]

In some situation, the following client settings cannot be treated by changing profiles dynamically per client's request :

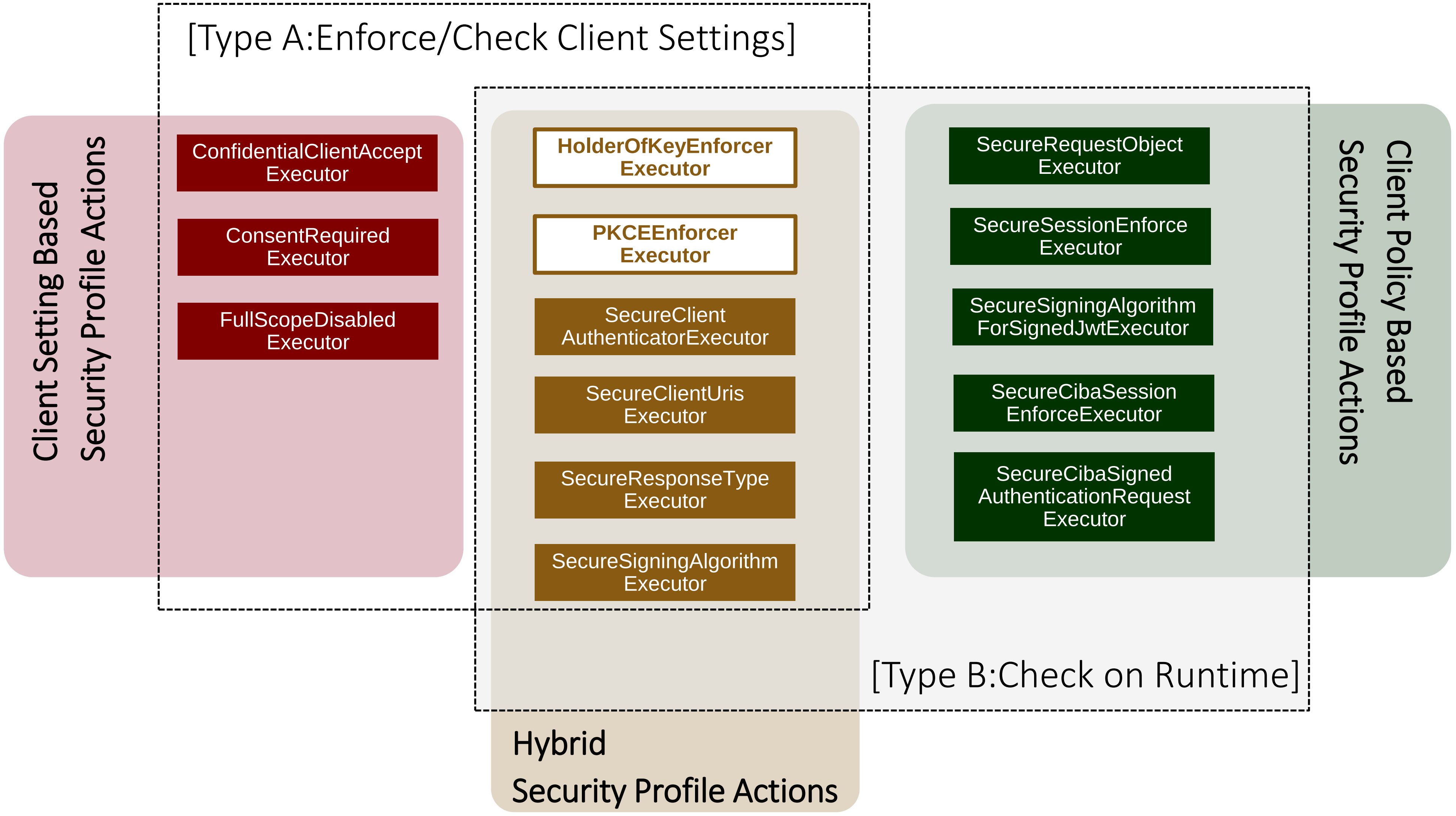
- By its nature, client settings are referred from codes **before** client polices are executed.

E.g.

JWS Signature Algorithm used for client authentication and request objects

- Client Authentication is executed before client policies.
- Parsing request object is executed before client policies.

Future : Nearly Policy Oriented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Security Profile Actions
[Type B:Check on Runtime]
Hybrid
Security Profile Actions

PROPOSED DRAFT

Future : Adding New Executor

- Avoid referring client settings

Tries to implement it as Type B : Check on Runtime executor.

- Get rid of logics referring client settings from codes of endpoints :

If using client settings, avoid such settings that are referred before client policies execution and introduce functional interface implementation to be referred after client policies execution.

- Recognizing limitation

If using such client settings, avoid referring such client settings when changing client profiles dynamically per client's request.

END