

# Non-local ID target interception

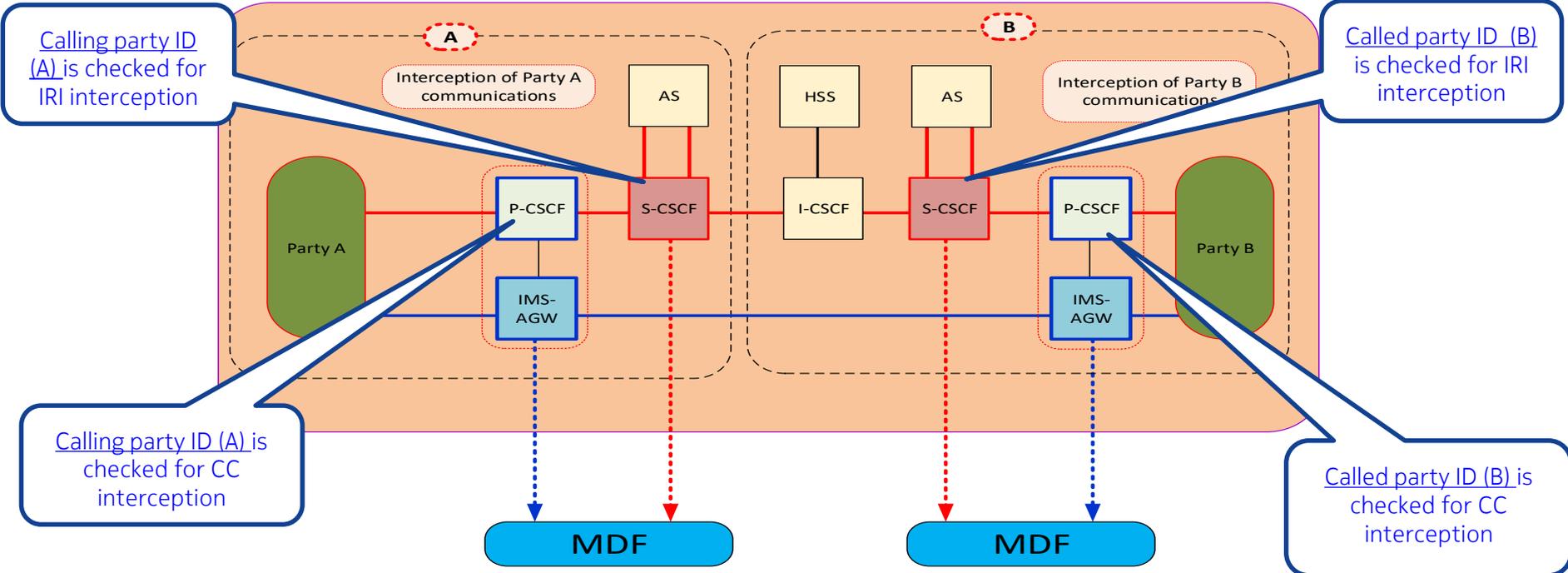
## Method 1 analysis

Nagaraja (Nag) Rao; Boca Raton, FL

# Background

## IMS LI architecture principles (local targets)

# Party A (target) calls party B (target)

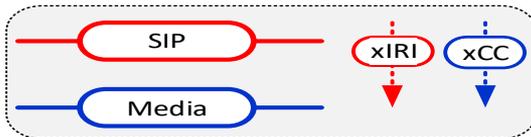


Calling party ID:: PAI, FROM

A target

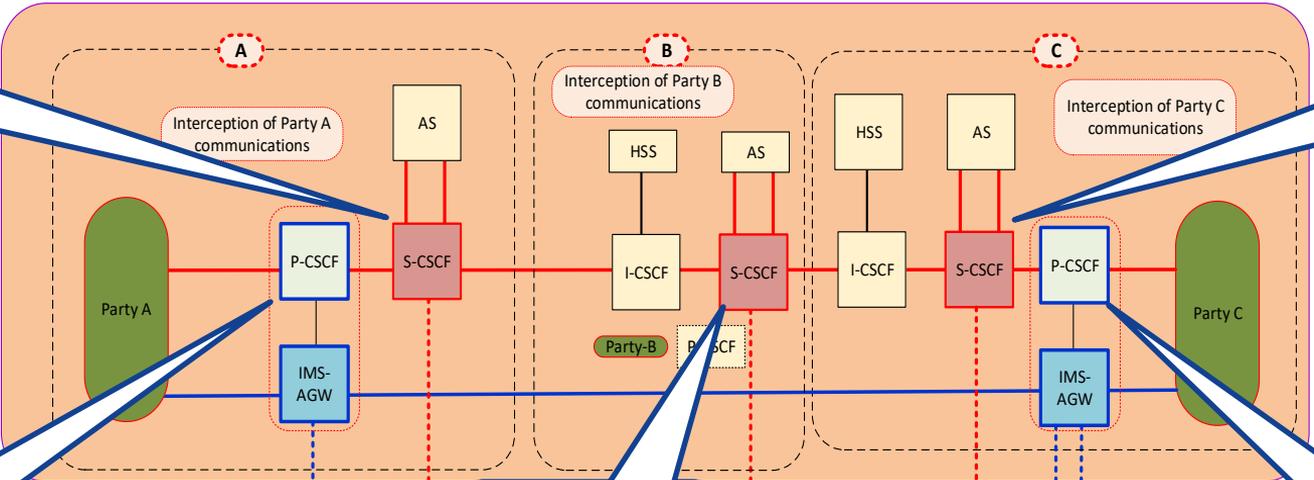
B target

Called party ID:: REQUEST URI, TO



# Party A (target) calls party B (target) redirected to party C (target)

Calling party ID (A) is checked for IRI interception



Called party ID (C) is checked for IRI interception

Calling party ID (A) is checked for CC interception

Called party ID (B) is checked for IRI interception

Called party ID (C) and redirecting party ID (B) are checked for CC interception

MDF

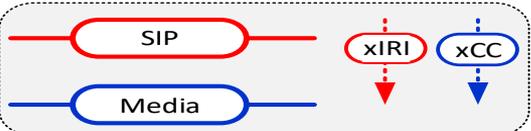
MDF

MDF

A target

B target

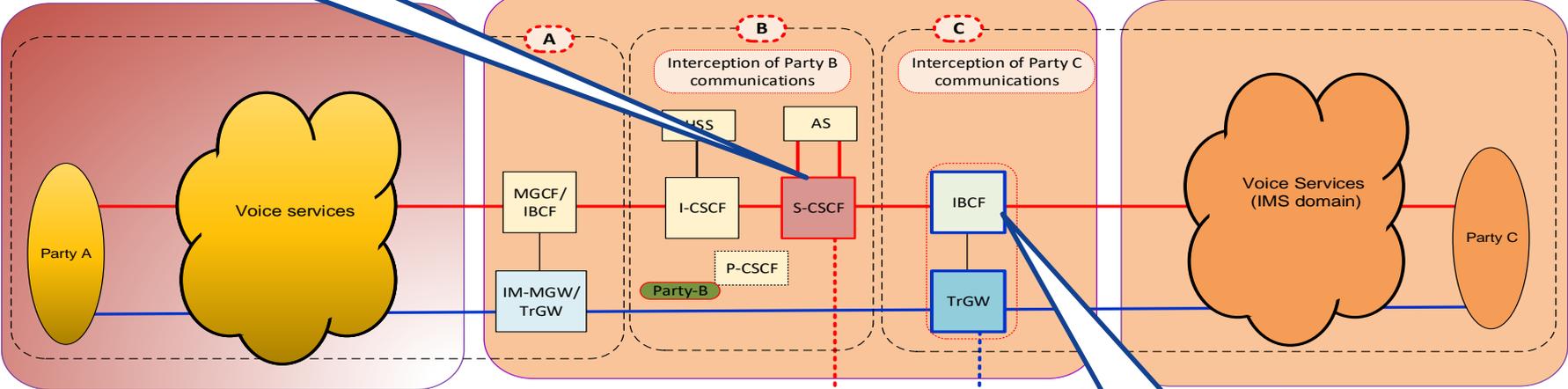
C target



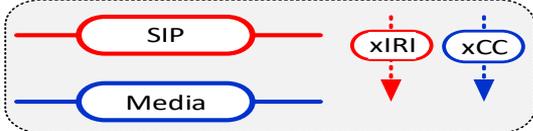
Redirecting party ID:: History-Info, Diversion

# Party A (CS/IP domain) calls party B (target) redirected to party C (IMS domain)

Called party ID (B) is checked for IRI interception

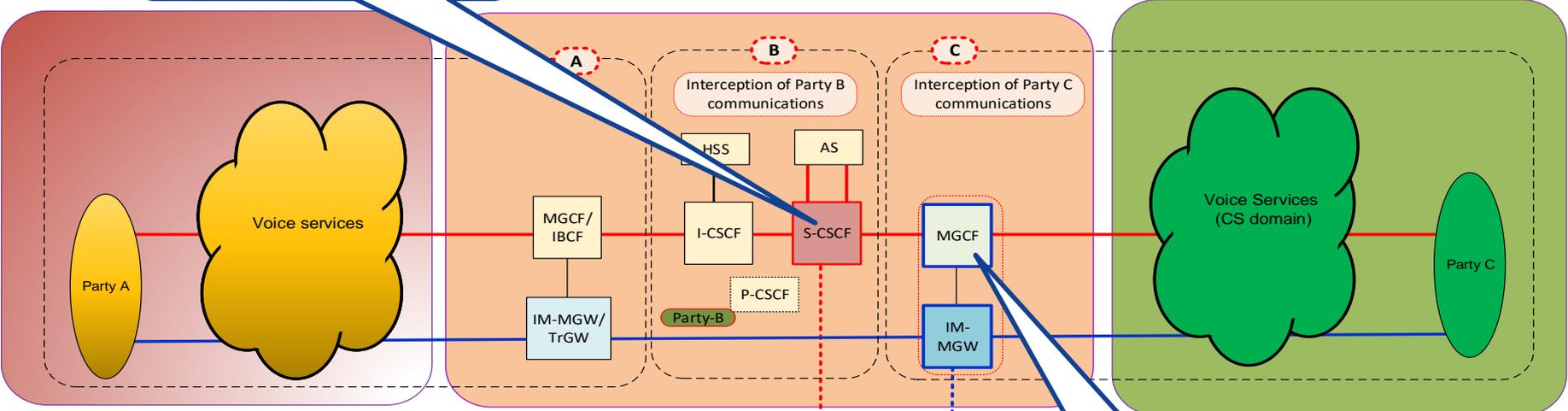


Redirecting party ID (B) is checked for CC interception



# Party A (CS/IP domain) calls party B (target) redirected to party C (CS domain)

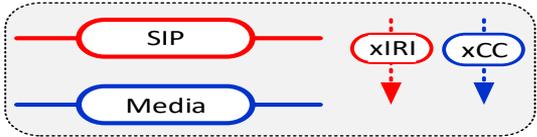
Called party ID (B) is checked for IRI interception



Redirecting party ID (B) is checked for CC interception

MDF

B target



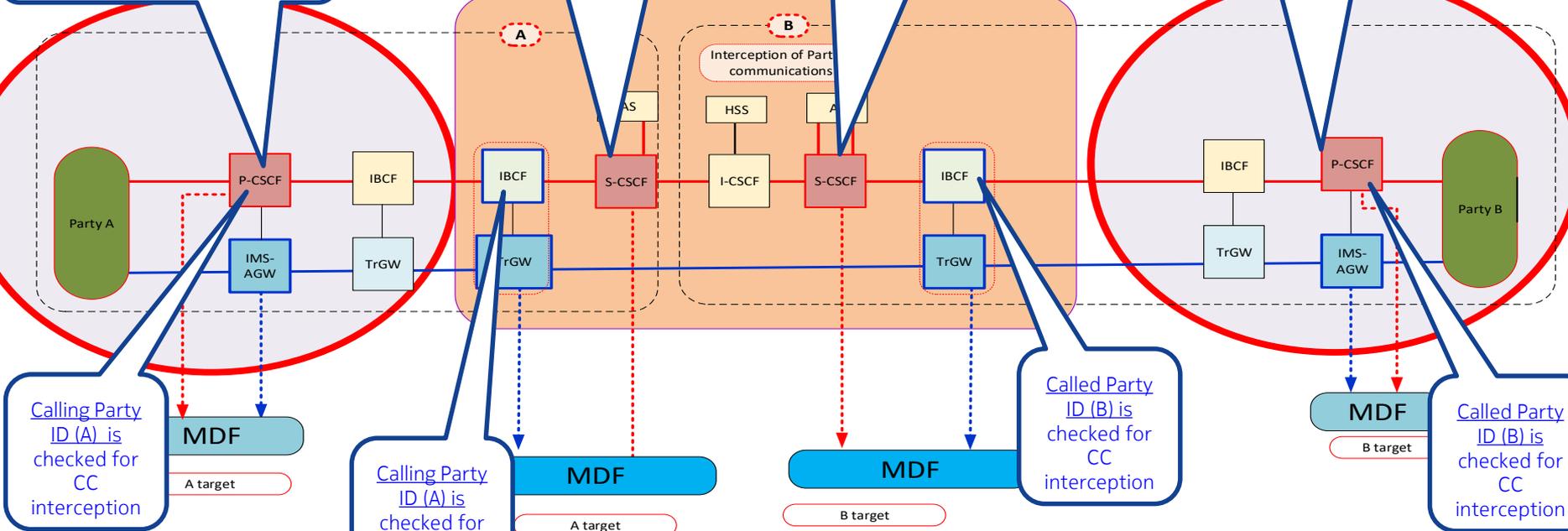
# Roaming (LBO) Party A (target) calls roaming (LBO) party B (target) VPLMN and HPLMN intercepts are independent of each other

Calling party ID (A) is checked for IRI interception

Calling party ID (B) is checked for IRI interception

Called party ID (B) is checked for IRI interception

Called party ID (B) is checked for IRI interception

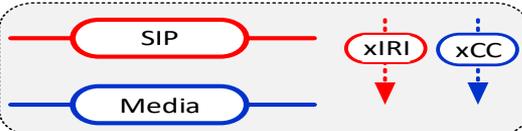


Calling Party ID (A) is checked for CC interception

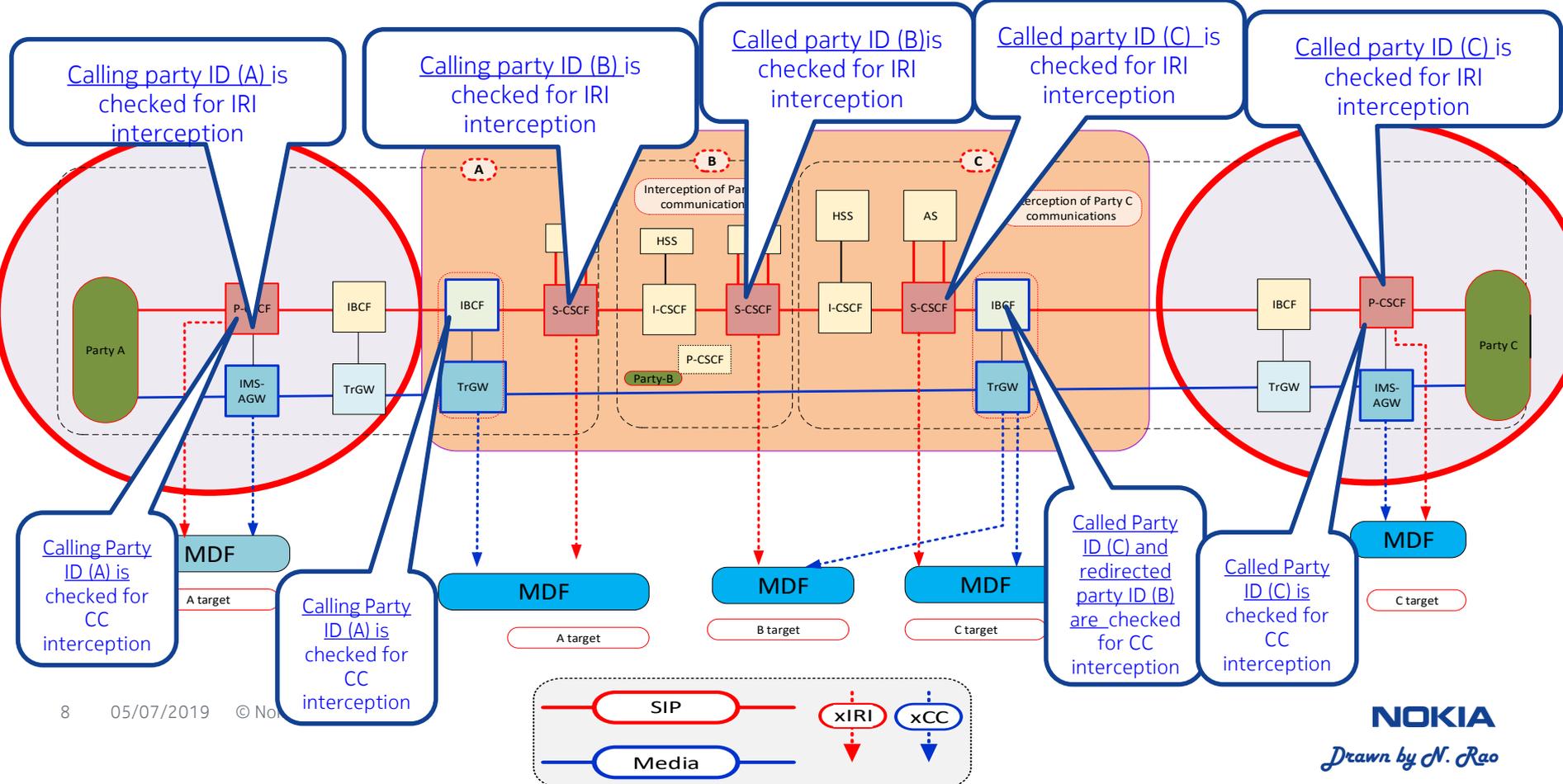
Calling Party ID (A) is checked for CC interception

Called Party ID (B) is checked for CC interception

Called Party ID (B) is checked for CC interception



# Roaming (LBO) Party A (target) calls party B (target) redirected to roaming (LBO) party C (target) VPLMN and HPLMN intercepts are independent of each other



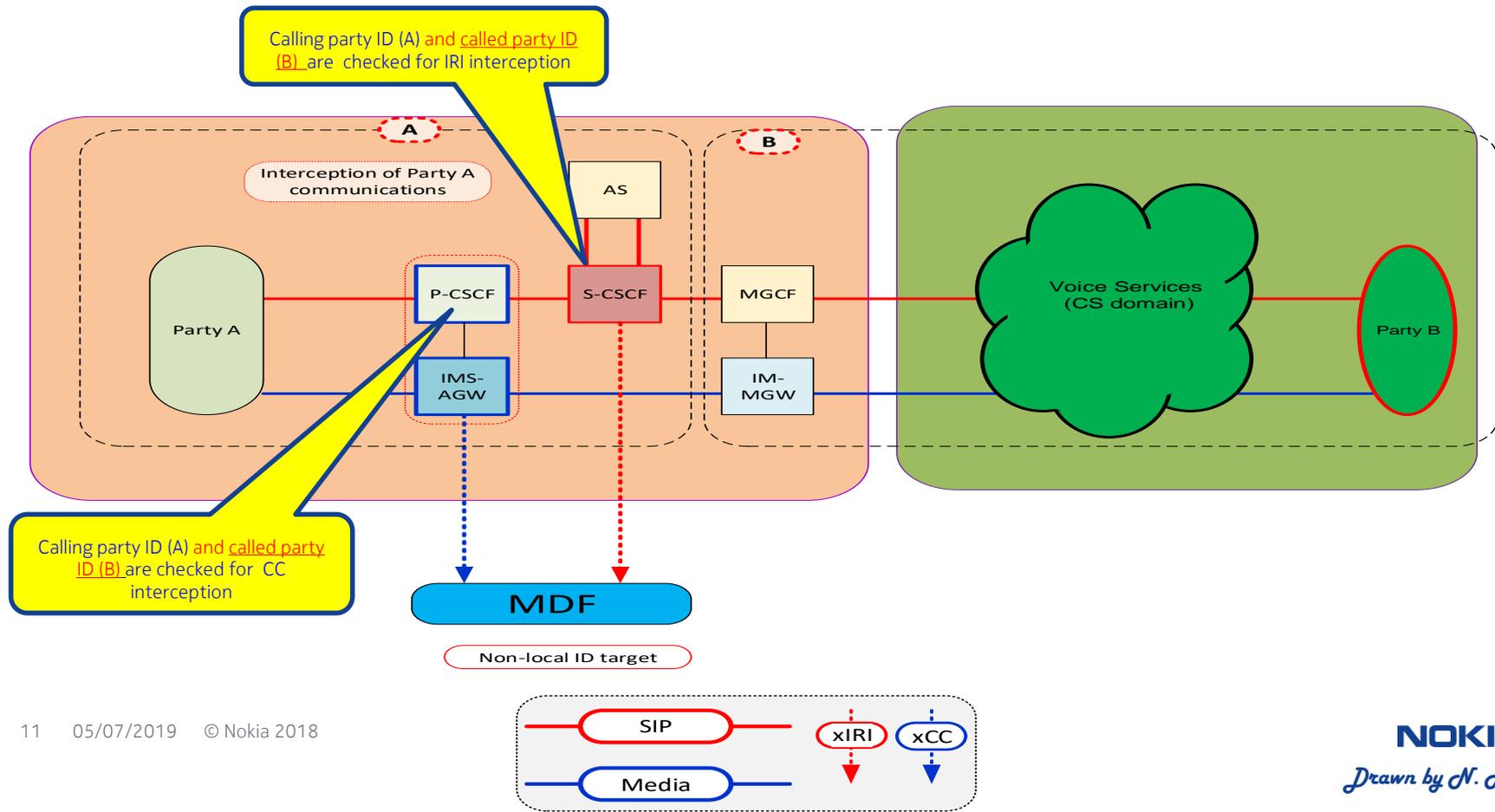
# Analysis of Method 1 for non-local ID target interception

# Overview

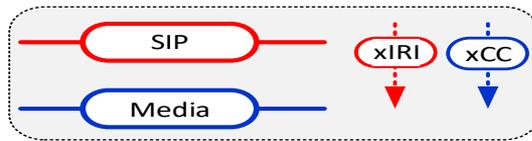
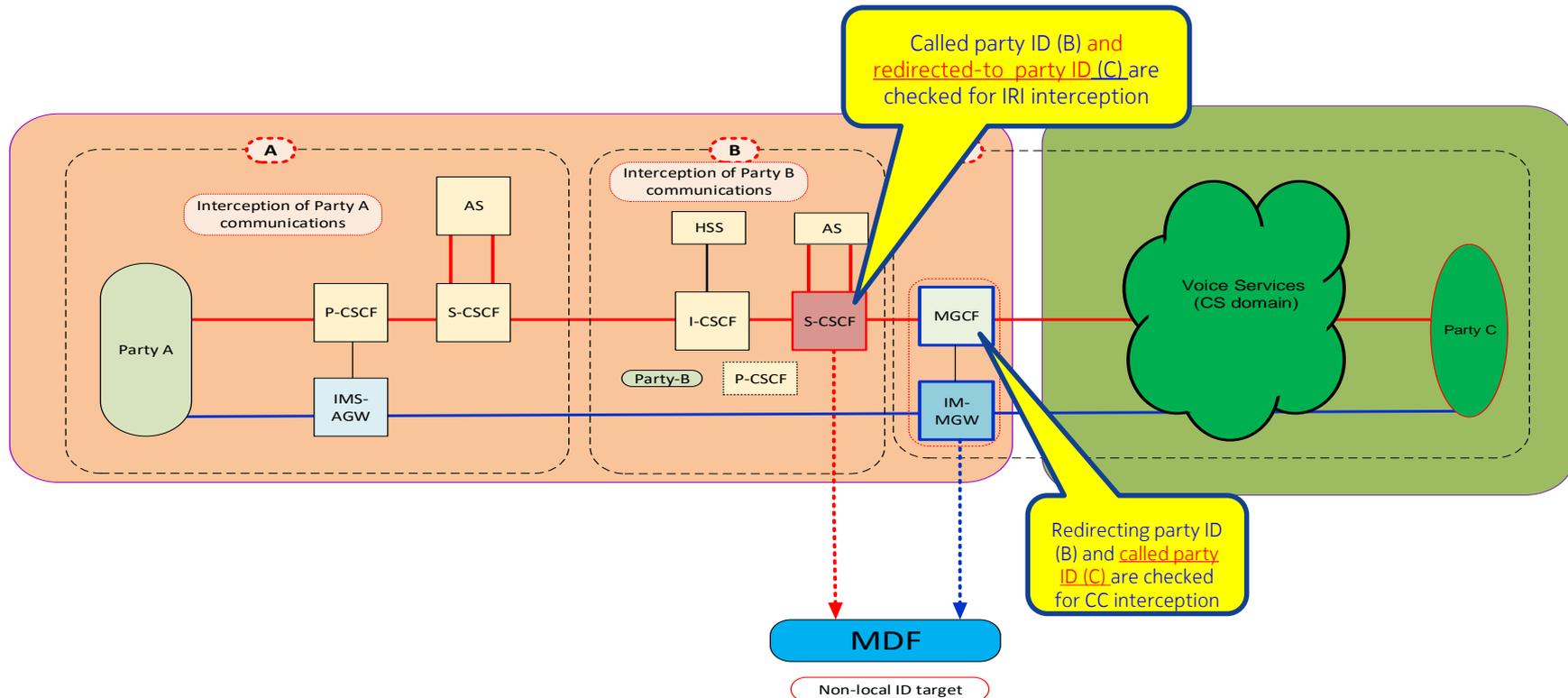
## Method 1:

- User that directly calls the non-local ID target is treated as the target for the interception purpose (i.e. determination of POIs → IRI and CC).
- User who receives the call from a non-local ID target or redirected from a non-local ID target is treated as the target for the interception purpose (i.e. determination of POIs) → IRI and CC.
- The presentation will show that this method may result in:
  - Possible missed interceptions
  - Too many case of double/triple interceptions.
- This method, which appears to be simple, basically, extends the scope of POIs, TFs with the additional filtering criteria.

# Party A calls party B (non-local ID target)

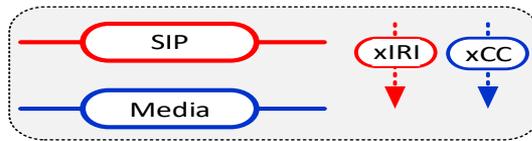
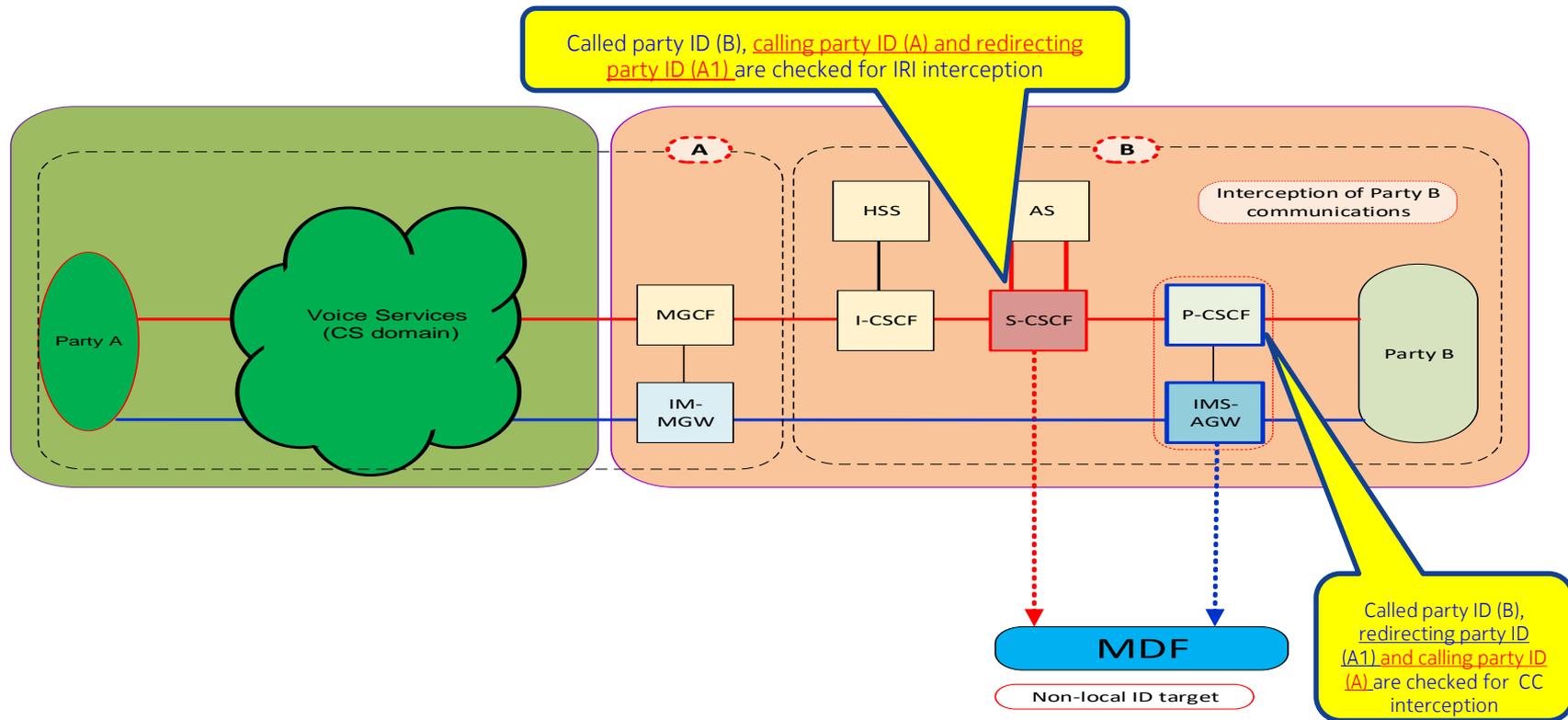


# Party A calls party B redirected to party C (non-local ID target)



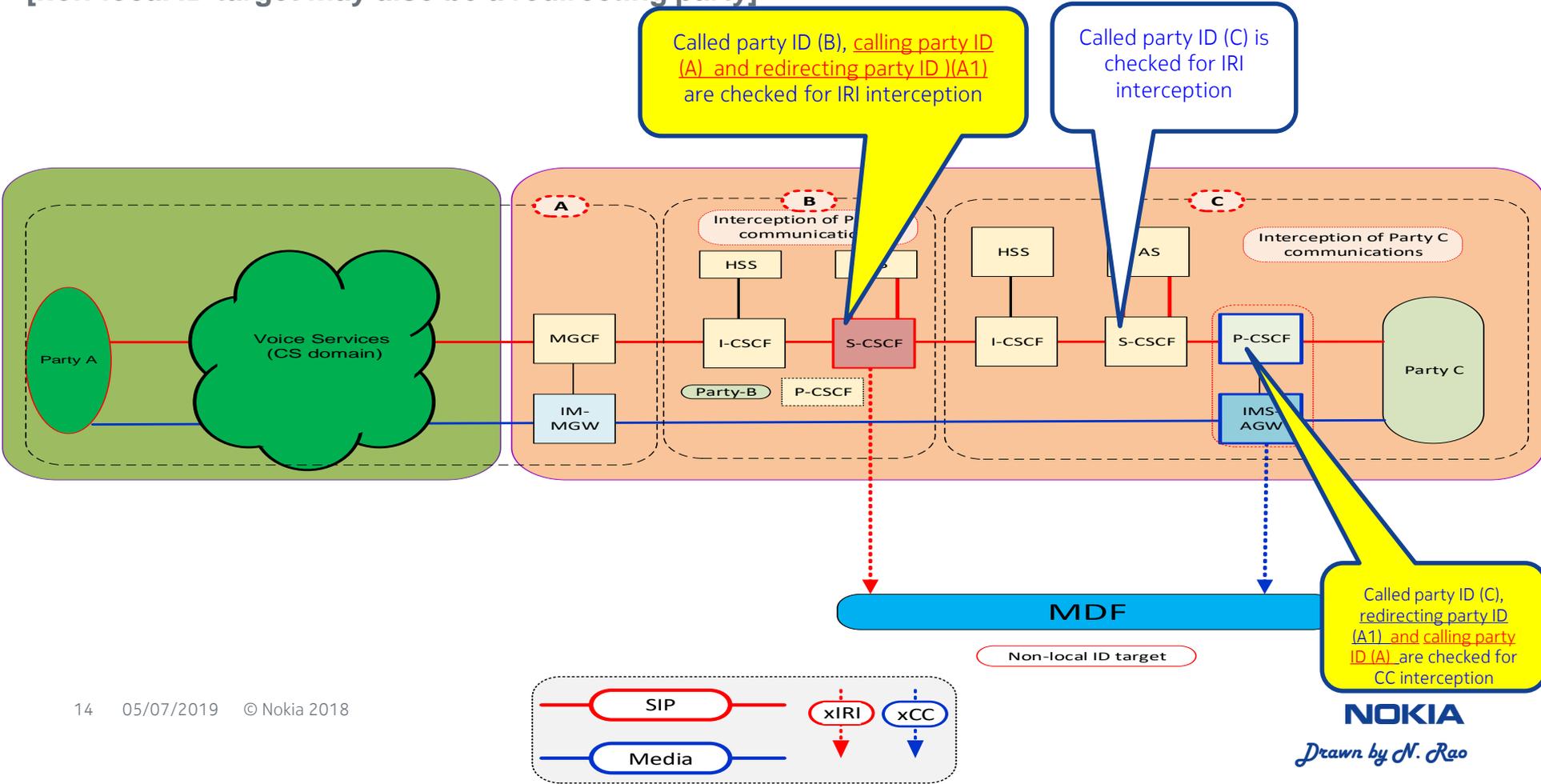
# Party A (non-local ID target) calls party B

[non-local ID target may also be a redirecting party]

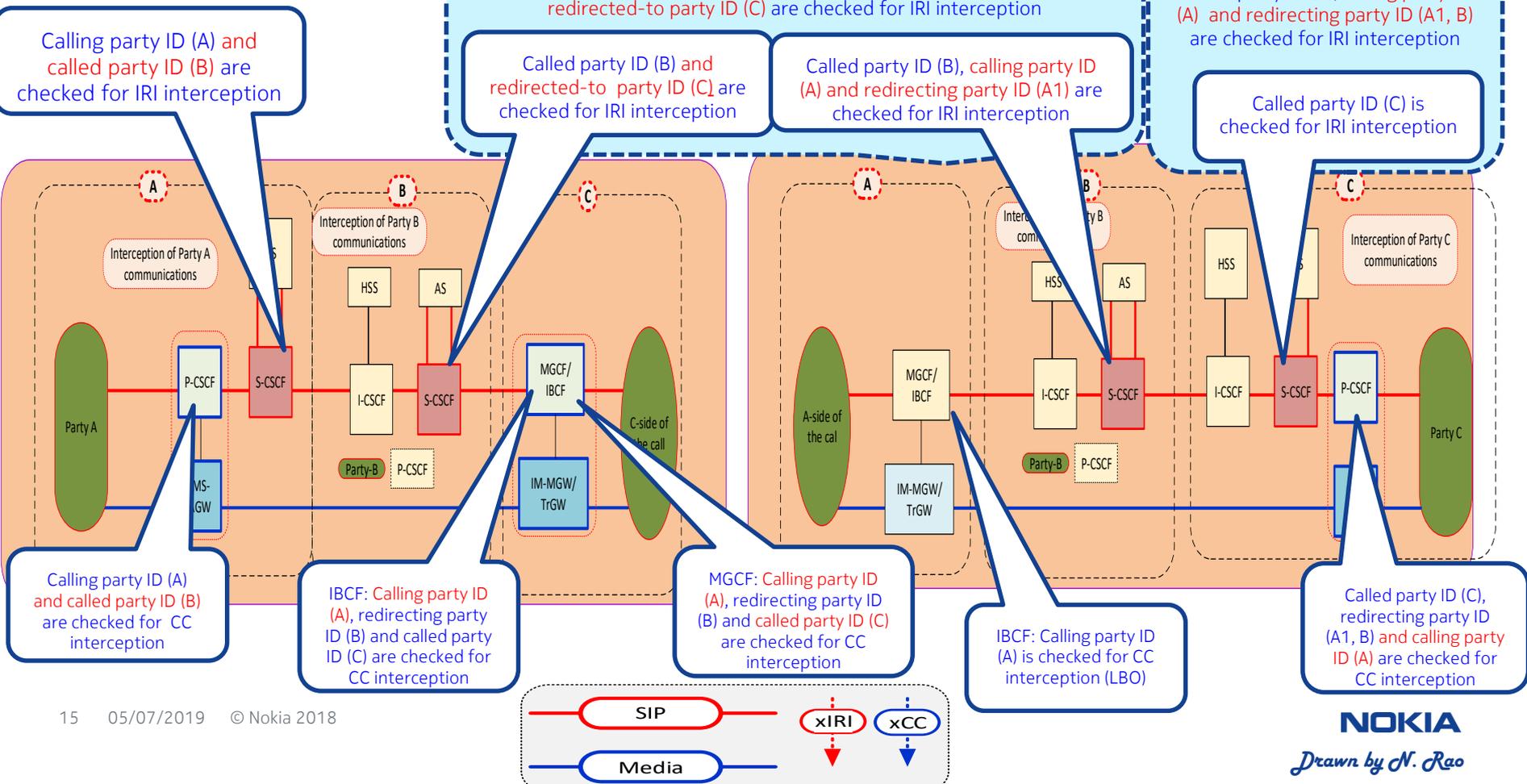


# Party A (non-local ID target) calls party B redirected to party C

[non-local ID target may also be a redirecting party]



# Summary of method 1



Calling party ID (A) and called party ID (B) are checked for IRI interception

Called party ID (B), calling party ID (A) and redirecting party ID (A1) and redirected-to party ID (C) are checked for IRI interception

Called party ID (B) and redirected-to party ID (C) are checked for IRI interception

Called party ID (B), calling party ID (A) and redirecting party ID (A1) are checked for IRI interception

Called party ID (C), calling party ID (A) and redirecting party ID (A1, B) are checked for IRI interception

Called party ID (C) is checked for IRI interception

Calling party ID (A) and called party ID (B) are checked for CC interception

IBCF: Calling party ID (A), redirecting party ID (B) and called party ID (C) are checked for CC interception

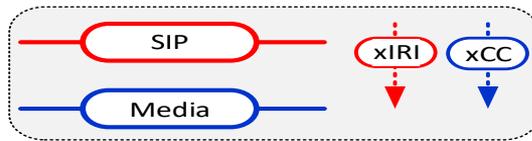
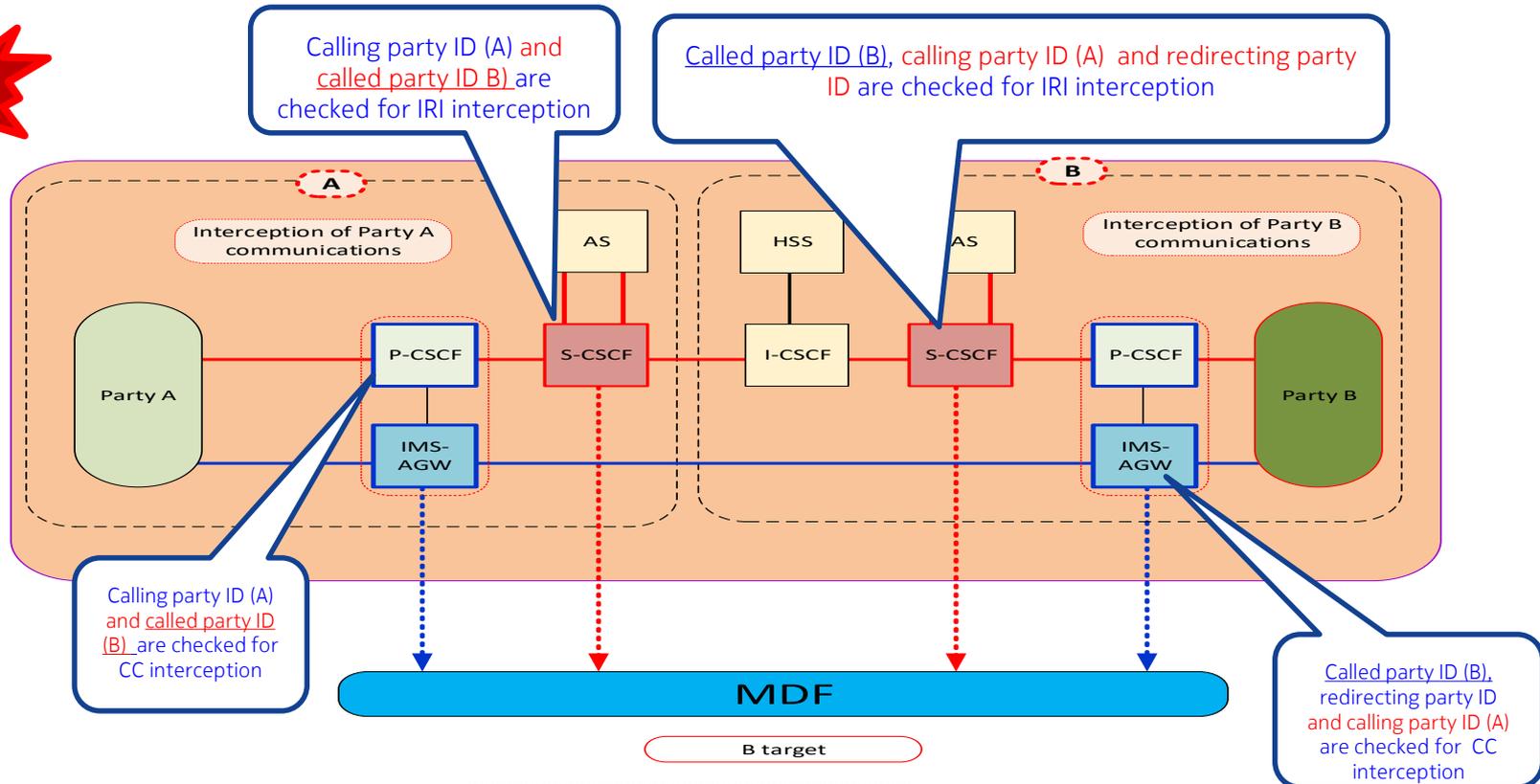
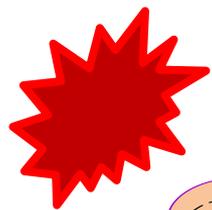
MGCF: Calling party ID (A), redirecting party ID (B) and called party ID (C) are checked for CC interception

IBCF: Calling party ID (A) is checked for CC interception (LBO)

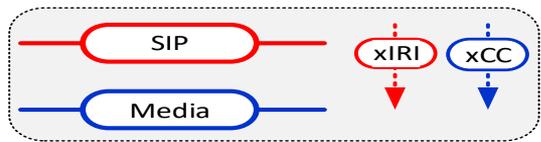
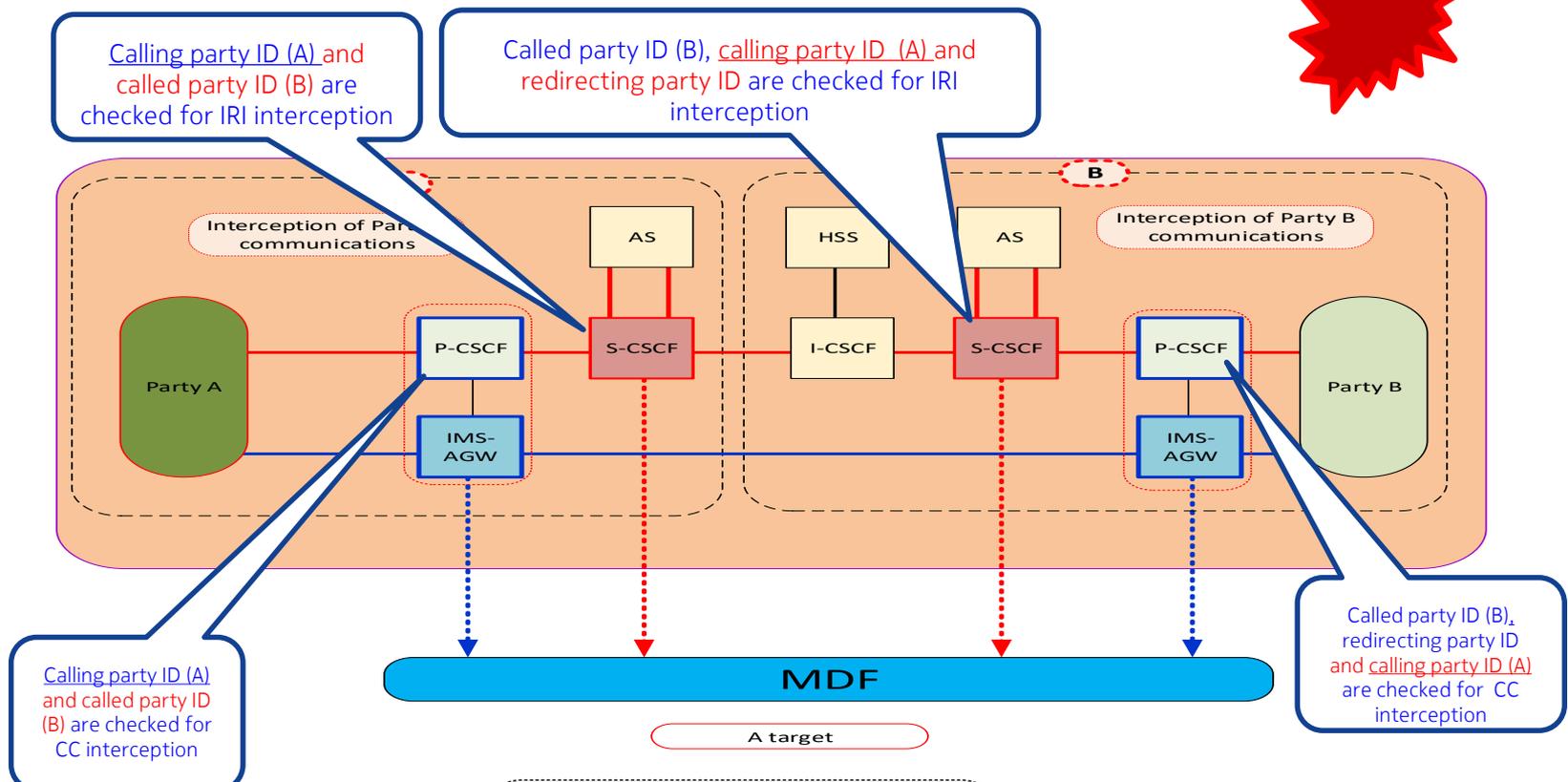
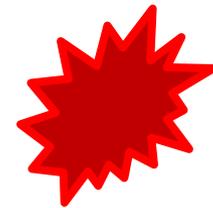
Called party ID (C), redirecting party ID (A1, B) and calling party ID (A) are checked for CC interception

# Analysis of method 1

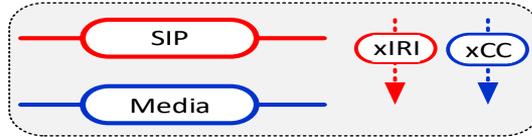
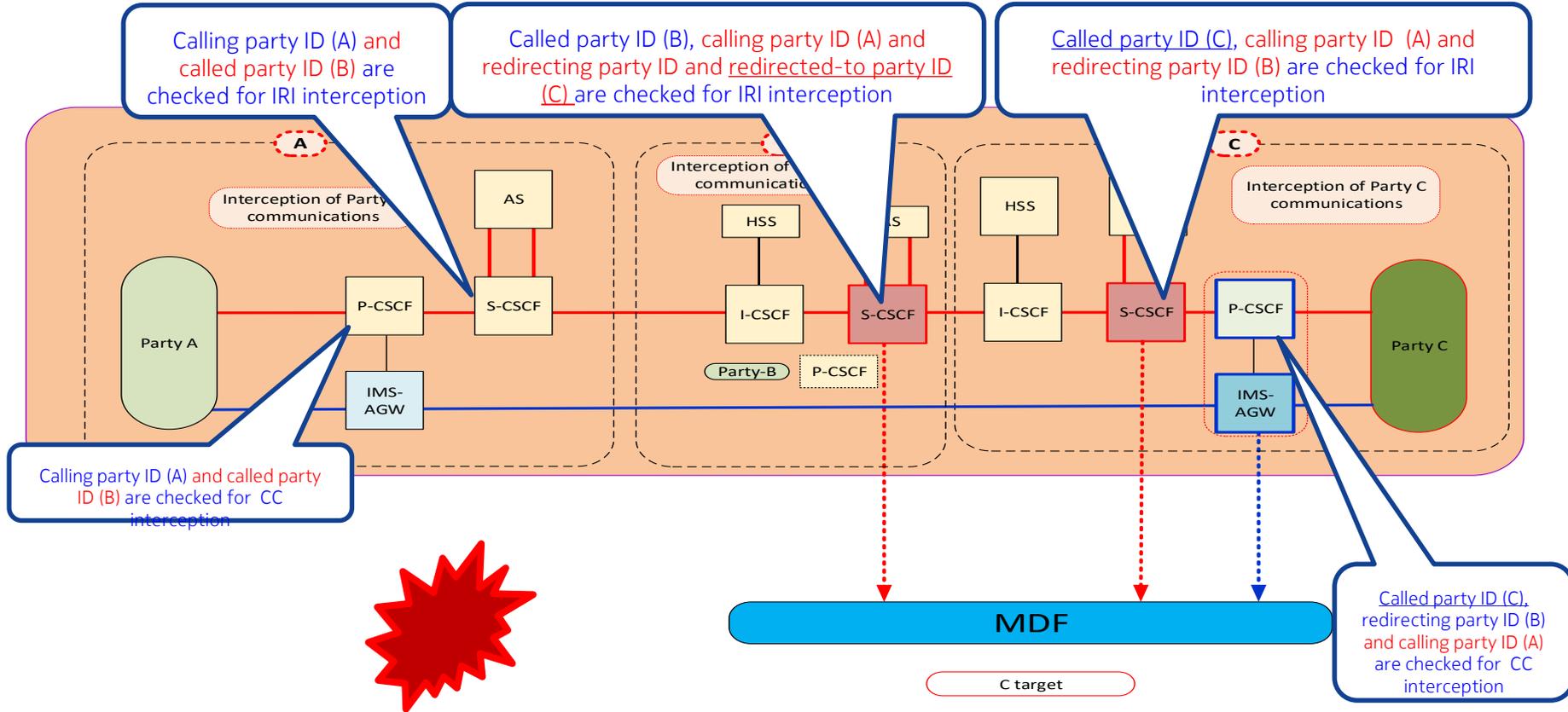
# Party A calls party B (target) - double interception, IRI and CC



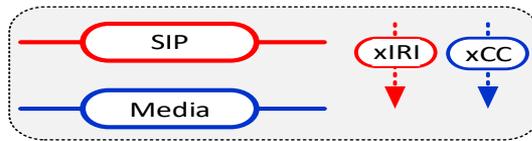
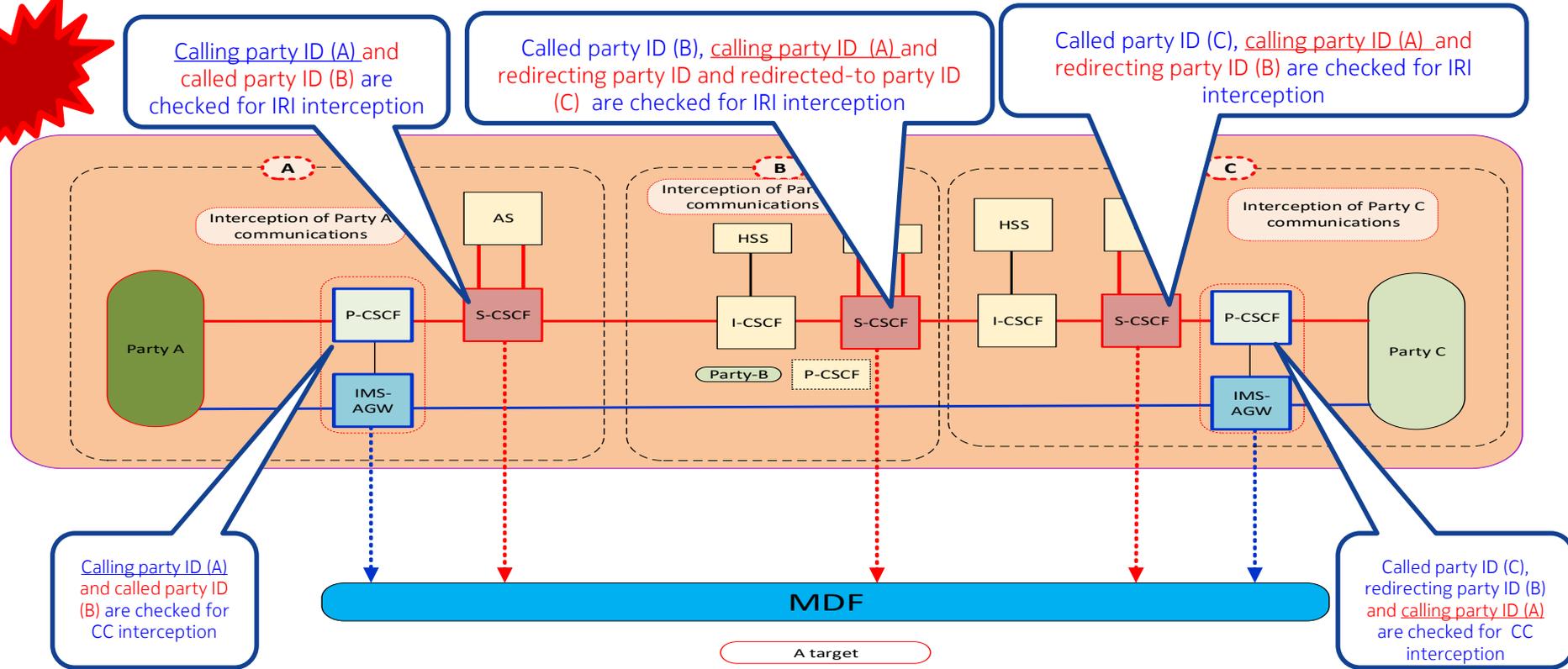
# Party A (target) calls party B – double interception, IRI and CC



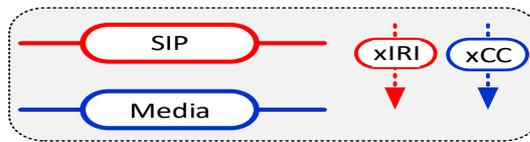
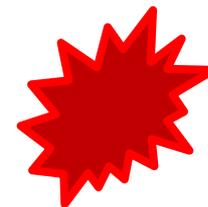
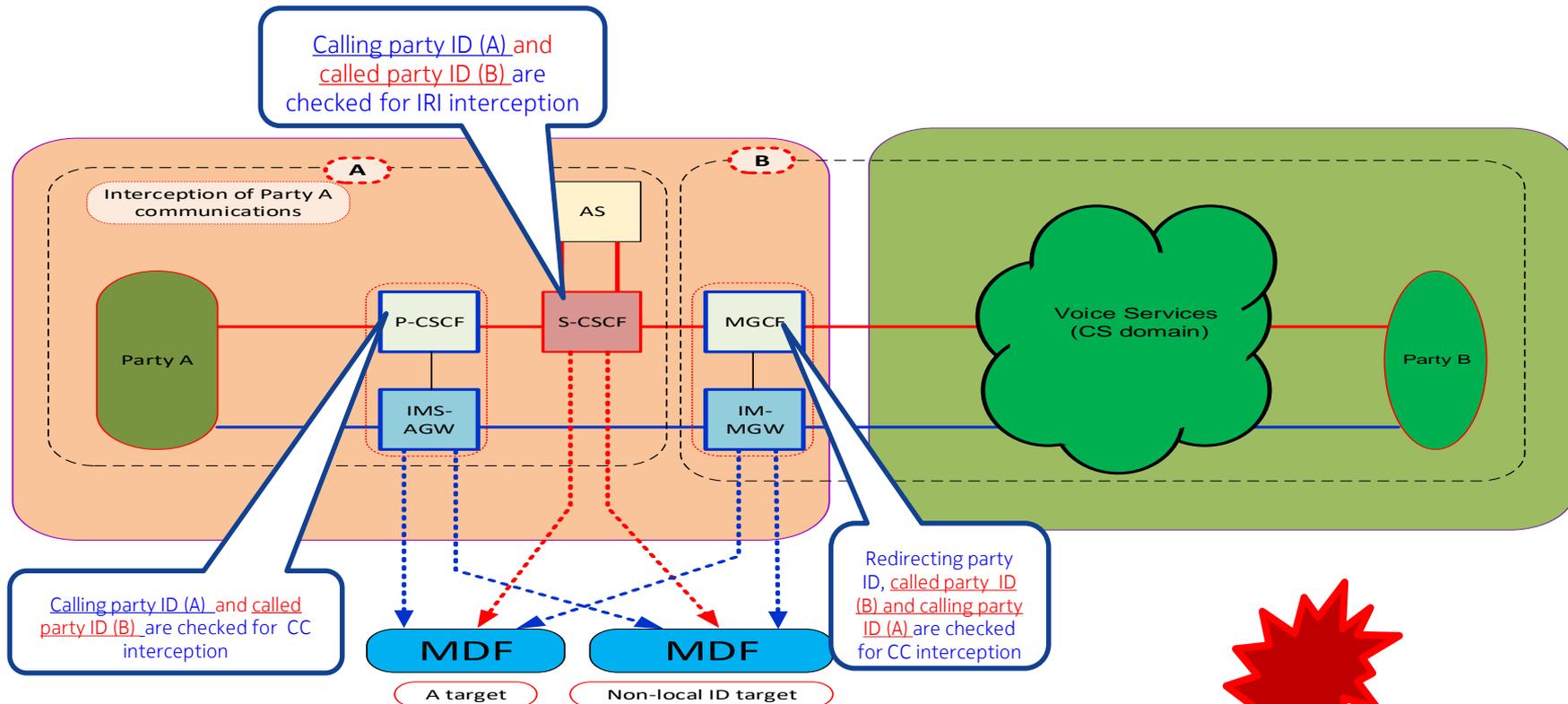
# Party A calls party B redirected to party C (target) - double interception, IRI



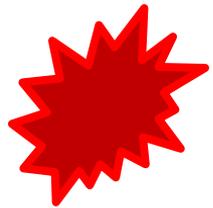
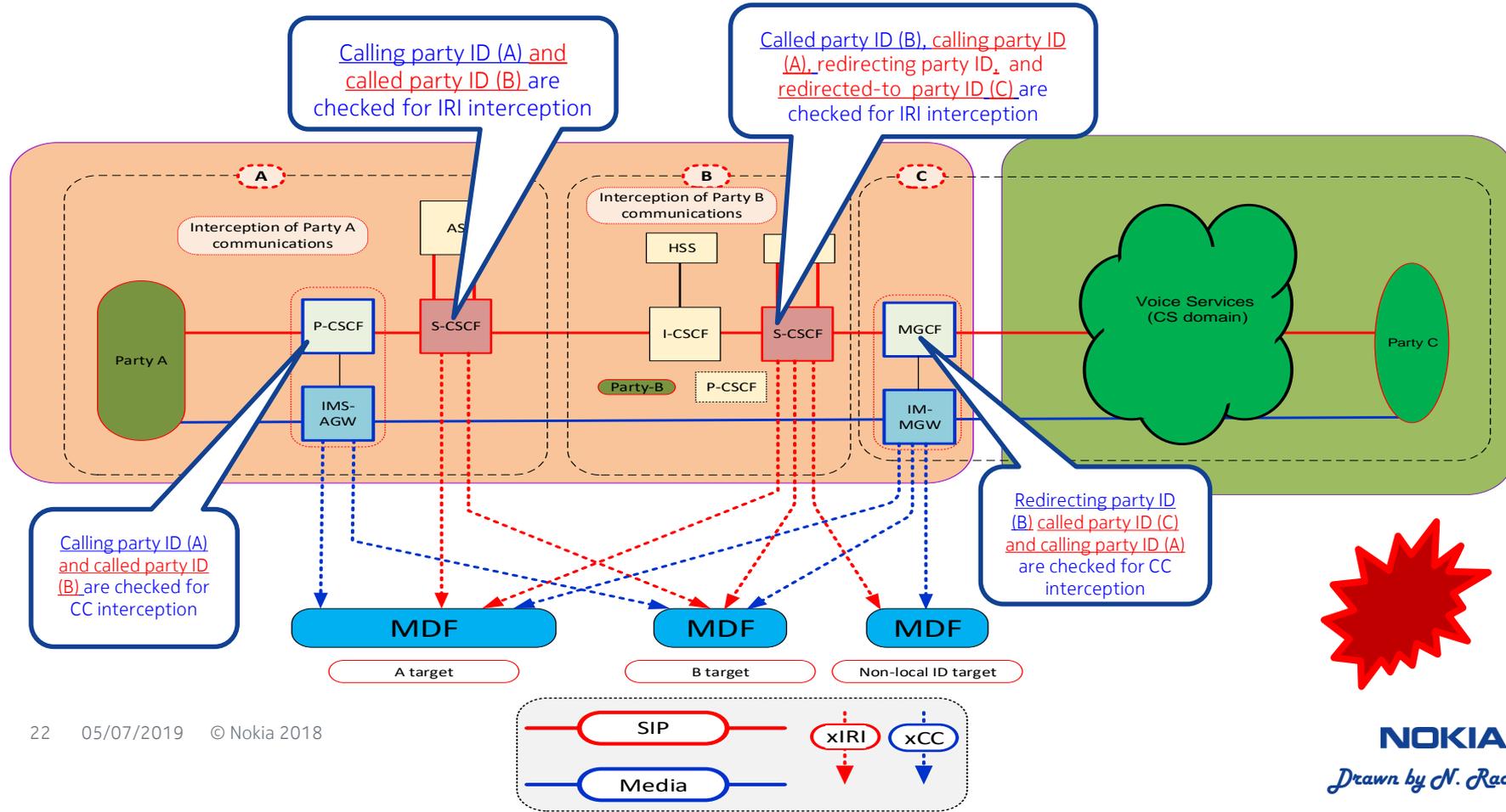
# Party A (target) calls party B redirected to party C – triple interception IRI and double interception CC



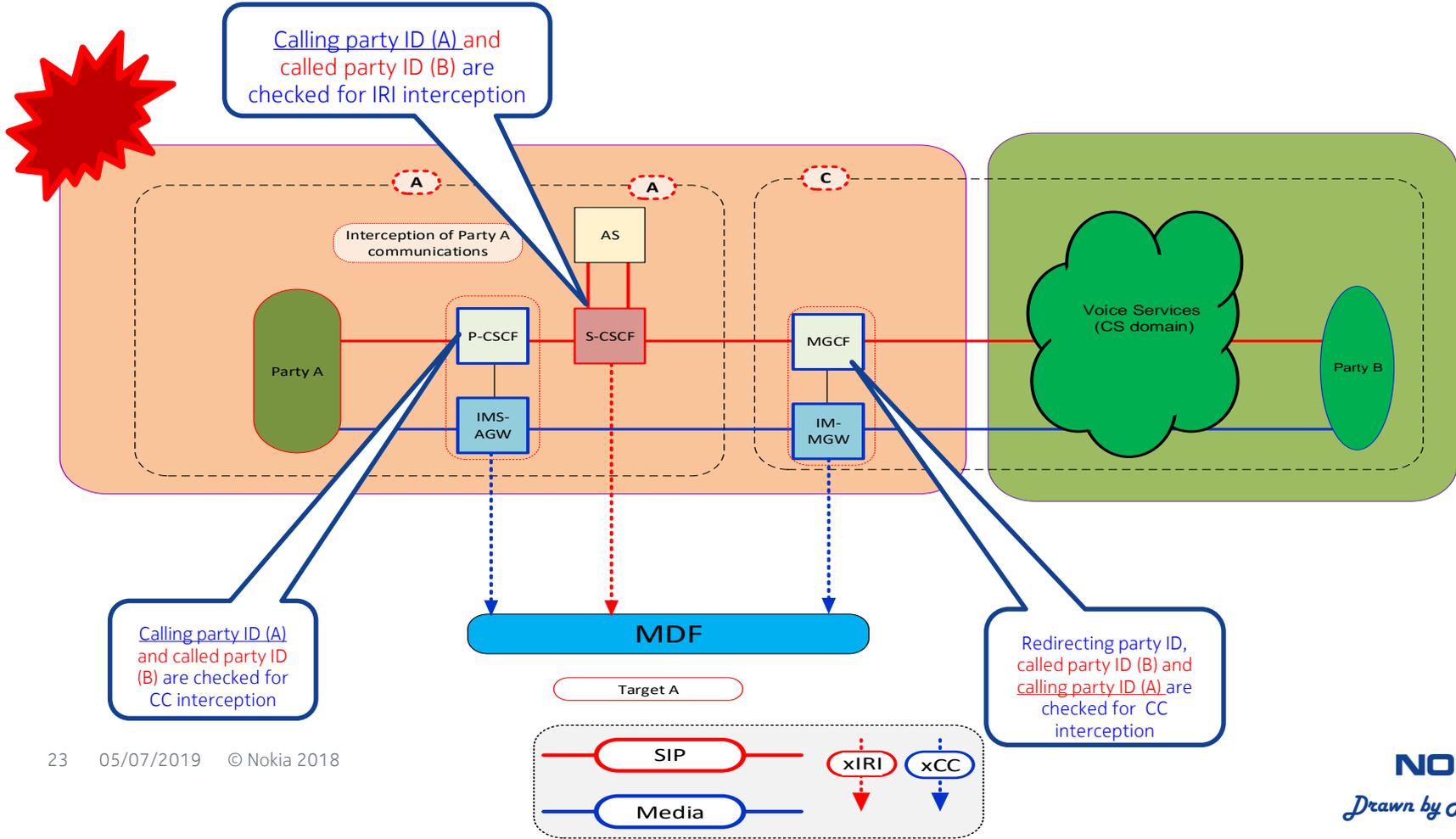
# Party A (target) calls party B (non-local ID target) – double interception, CC



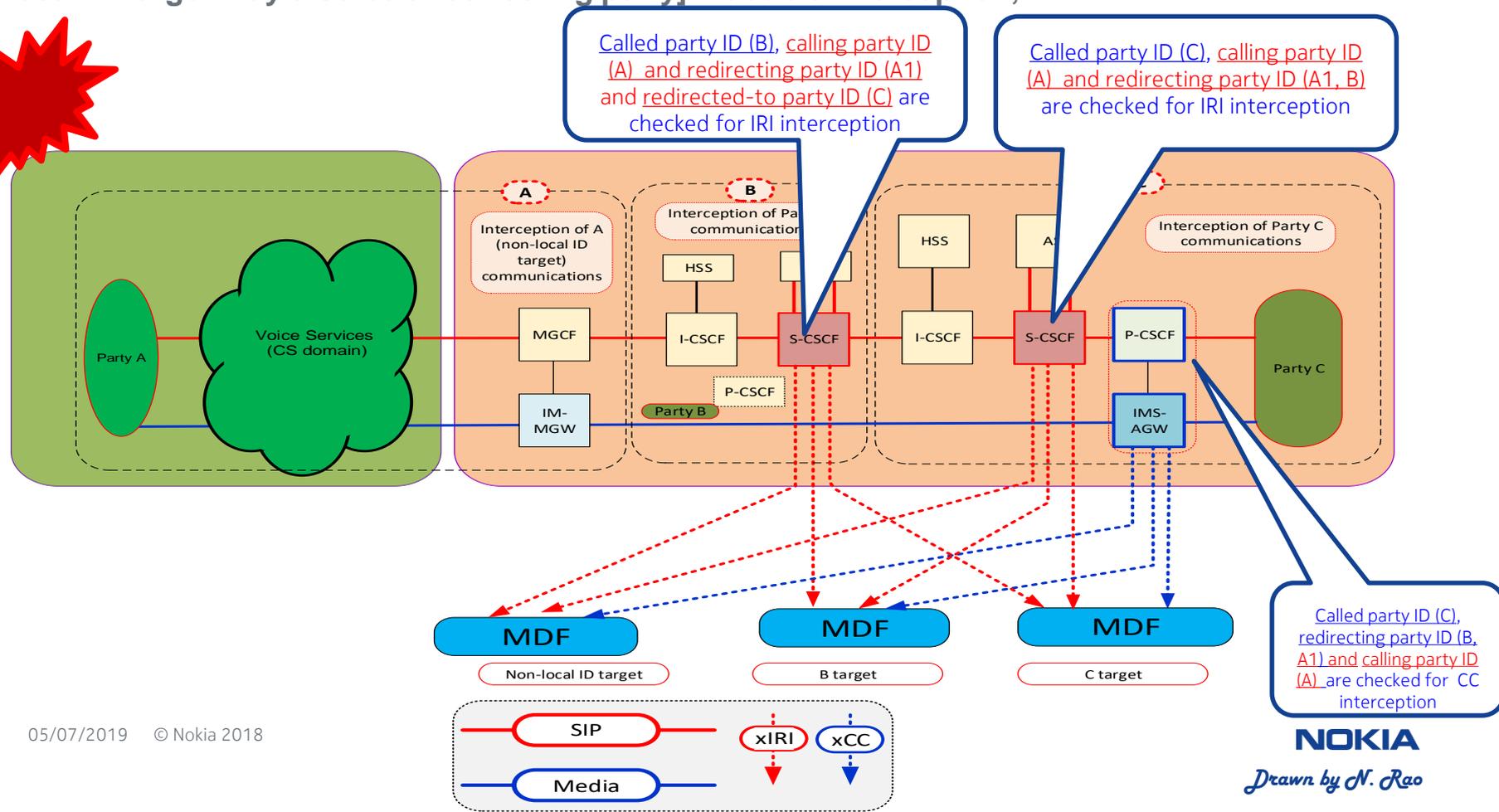
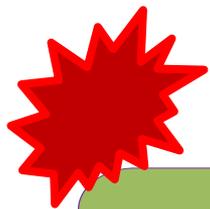
# Party A (target) calls party B (target) redirected to party C (non-local ID target) - Double interception, IRI and CC



# Party A (target) calls party B – double interception, CC

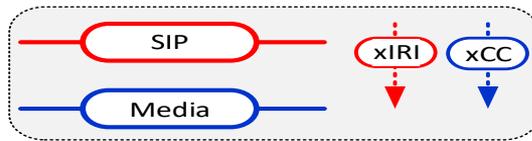
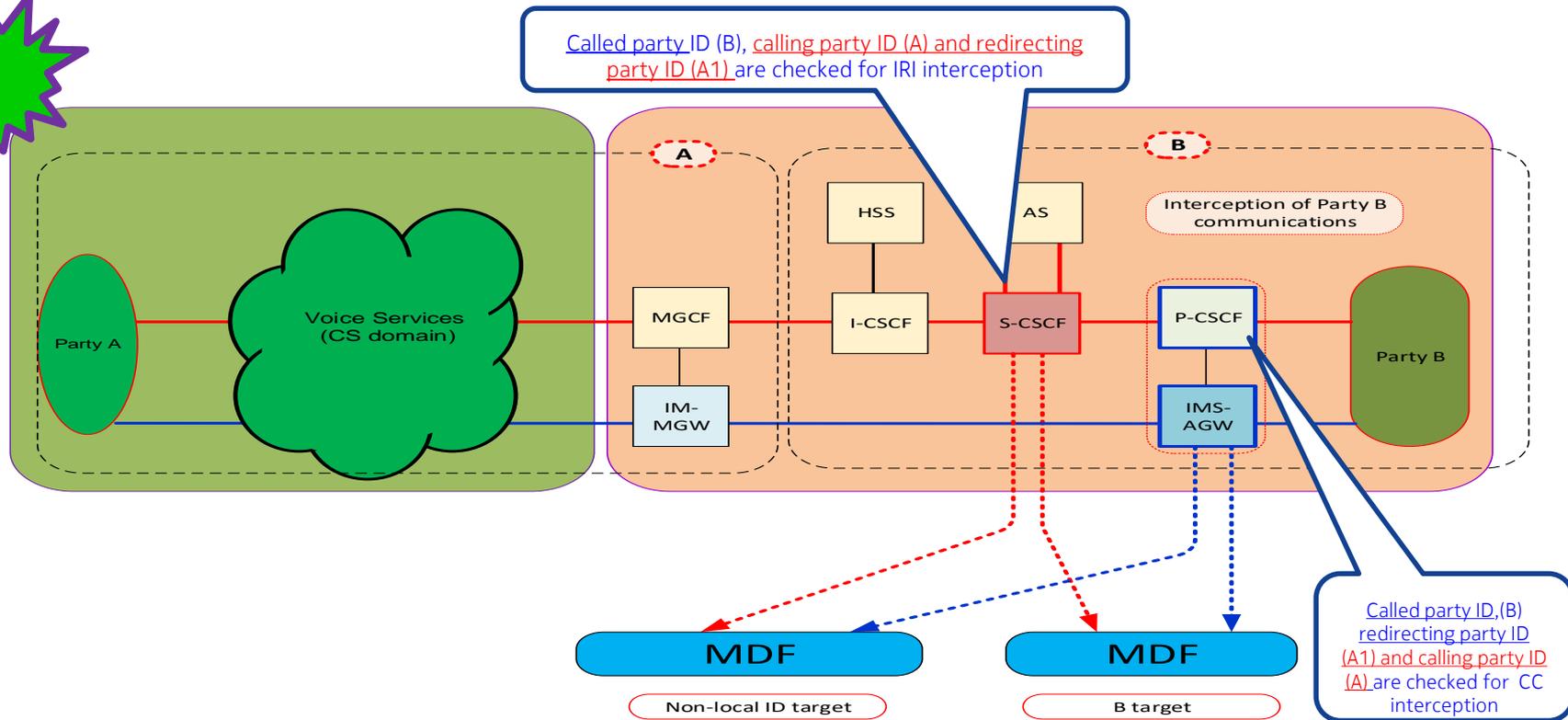
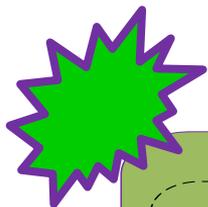


# Party A (non-local ID target) calls party B (target) redirected to party C (target) [non-local ID target may also be a redirecting party] – double interception, IRI

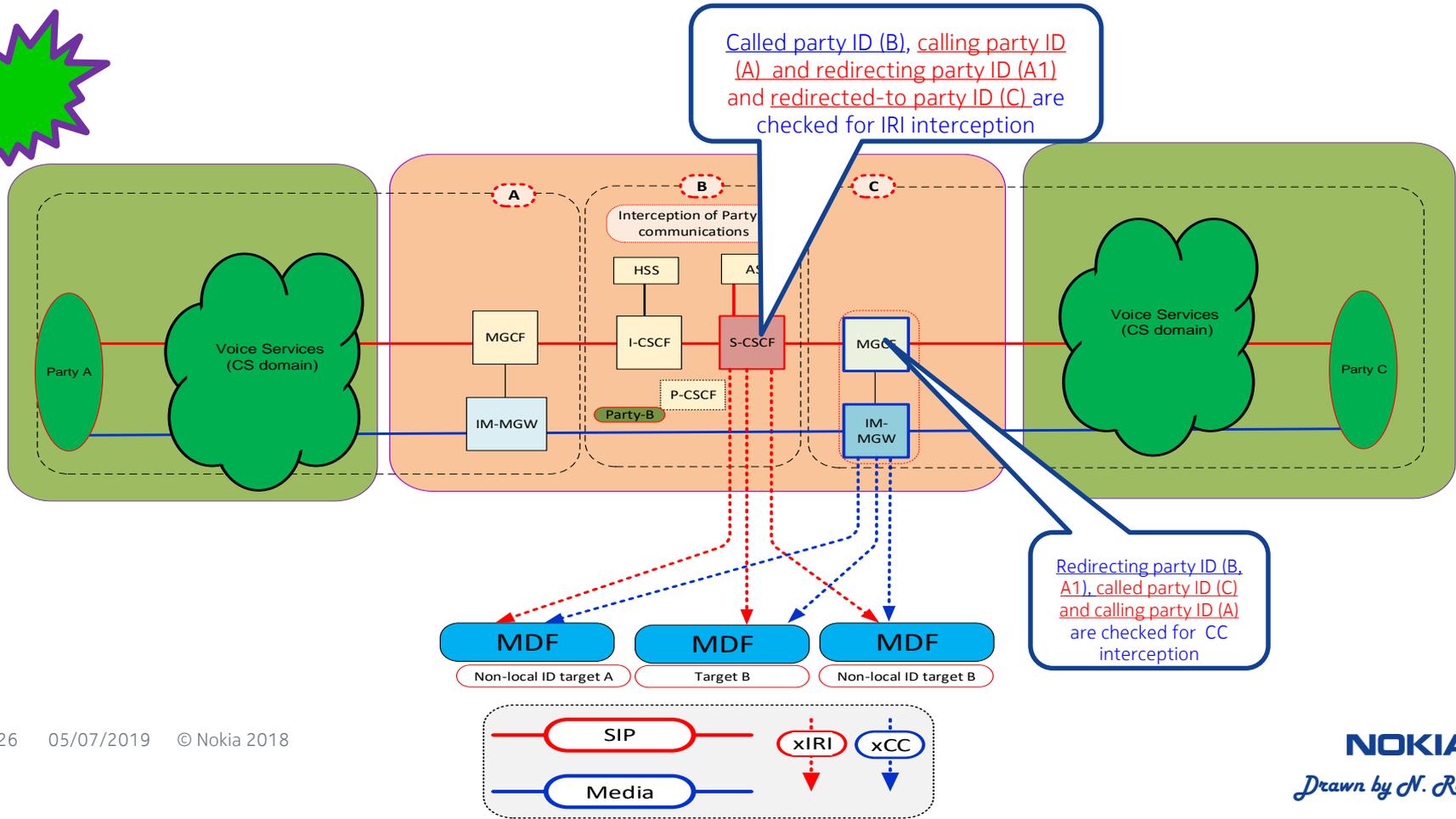
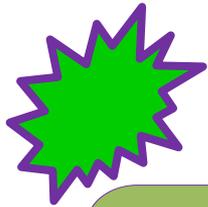


# Party A (non-local ID target) calls party B (target)

[non-local ID target may also be a redirecting party]



# Party A (non-local ID target) calls party B (target) redirected to party C (non-local ID target)



# Summary

Scenario	IRI-POI	CC-POI	Pros	Cons
B receives a call from non-local ID target A	S-CSCF (B) AS (B)	IMS-AGW (B)	<ul style="list-style-type: none"><li>• Uses the existing IRI- POIs [S-CSCF, AS]</li><li>• P-CSCF in VPLMN with roaming with LBO</li></ul>	<ul style="list-style-type: none"><li>• POIs need to be enhanced with additional filtering criteria</li><li>• Possible missed interception cases</li><li>• Too many situations of possible double interceptions</li></ul>
A calls non-local Id target B	S-CSCF (A) AS (A)	IMS-AGW (A)		
B who receivers a call from non-local ID target has call forwarding to C	S-CSCF (B) AS (B) S-CSCF (C) AS (C)	IMS-AGW (C)		
A calls B who has a call forwarding to non-local ID target C	S-CSCF (A) AS (A)	TrGW (C) IM-MGW (C)		

**This presentation recommends not to use this method 1**

# Future analysis

## Method 1: Extends the scope of current LI functions (i.e. POIs)

- User that directly calls the non-local ID target is treated as the target for the interception purpose (i.e. determination of POIs → IRI and CC).
- User who receives the call from a non-local ID target or redirected from a non-local ID target is treated as the target for the interception purpose (i.e. determination of POIs) → IRI and CC.
- → possible missed interceptions, too many double/triple interception scenarios.

## Method 1, extended:

- Method 1 with changes.
- → still some double interception scenarios, possible missed interceptions.

## Method 2:

- Method 1, extended is used for IRI, new method for CC ← this is the default method in the tables
- → one of case of IRI double interception, may be fixable. No CC double interception

## Method 3:

- Method 2 for CC and new method for IRI ← this the optional method in the tables
- → no issues found with this method.

**NOKIA**