

Case study: Numbering and dialling plans for France

and how they fit into the international numbering plan

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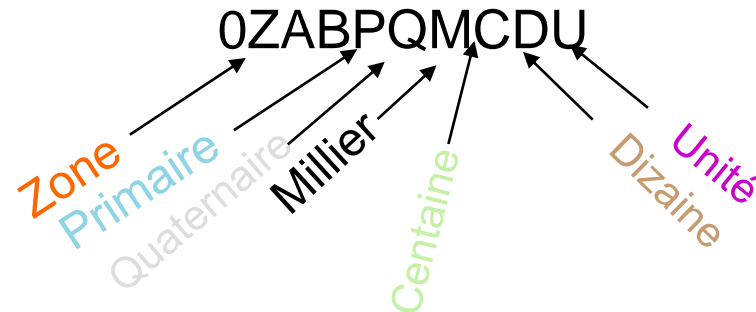


Overview

- The presentation provides an overview of the dialling and numbering plan of France and the E.212 identification plan
- It is essentially about the E.164 structure and how it can be changed
- **The presentation is intended to:**
 - 1. Provide basic notions of the dialling/numbering plan for France**
 - 2. Describes where it comes from, the changes it went through and how it relates to the international numbering plan**
- Other topics such as policies, tariffs, portability, fees, customer protection.... are not addressed here – but questions are welcome during the interactive session

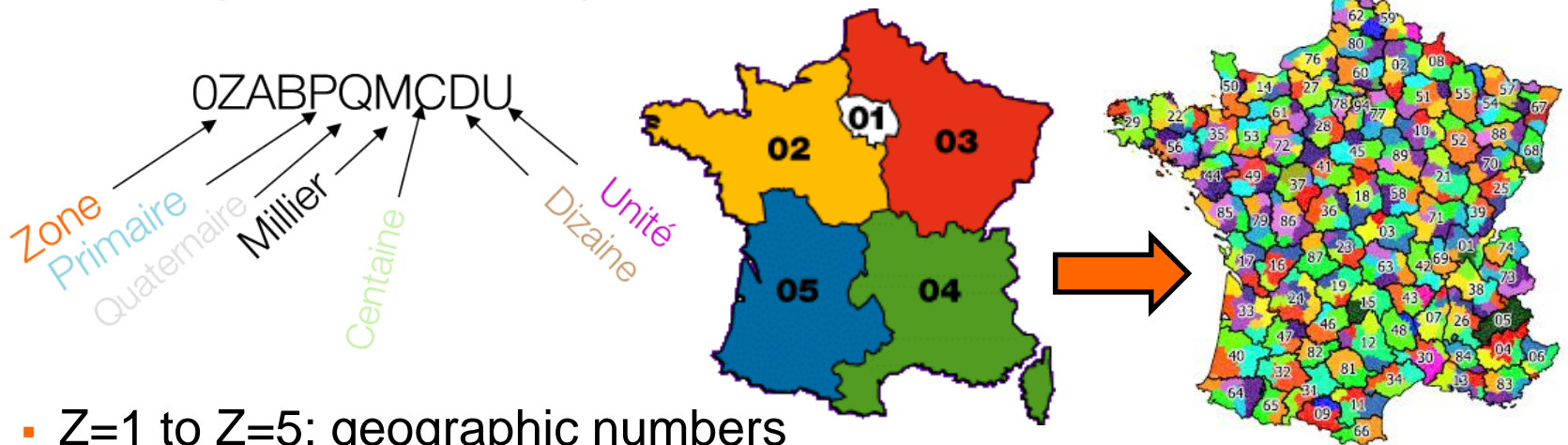
Dialling plan overview

- The dialling plan of France is a 10 digit plan generally represented as



- **Short codes:**
 - 3BPQ (added value services)
 - 118XYZ (directory services)
- **Emergency numbers:** 112, 15 (ambulance), 17 (Police), 18 (fire brigade), 114 (emergency SMS), 115 (« social urgency »), 116 000 : missing children hotline, 116 111 (child helplines), 116 117 (non-emergency medical number), 119 : Emotional support child helpline, 191 (Air transport hotline), 196 (Maritime rescue hotline), 197 : "red alert«
- **Operator services:** 10XY
- **Carrier selection codes:** 16XY or "E" (instead of national prefix 0)

Dialling plan – 10 digit numbers



Source:arcep.fr

- Z=1 to Z=5: geographic numbers
 - More than 500 basic geographic zones called Zone de Numérotation Elementaires (overseas departments not shown)
 - National location portability to be introduced soon
- Z=6 and 7: mobile numbers
 - Including M2M, roaming numbers, portability prefixes
 - Exception M2M numbers are 14 digit in length
- Z=8 added value services including freephone, shared cost/revenue, premium rates
- Z=9 non geographic national numbers (in general VoIP)

1. International context of the E.164 numbering plan



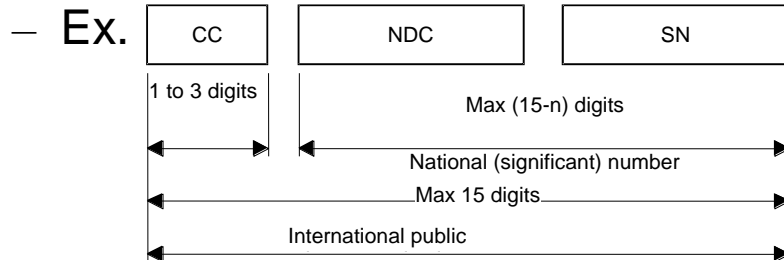
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Le plan de numérotage international E.164

- E.164 is both

- A **format** defined by the recommendation...



- ... and **values** allocated/assigned in a tree-like structure

- CC (country codes) assigned by the ITU

- To Member States eg Brazil 55, and administered by administrations or private entities through delegations

- To the ITU itself and administered directly by the ITU eg 800, 882883...

- NDC/SN assigned by Member States (or by delegation) in ranges generally

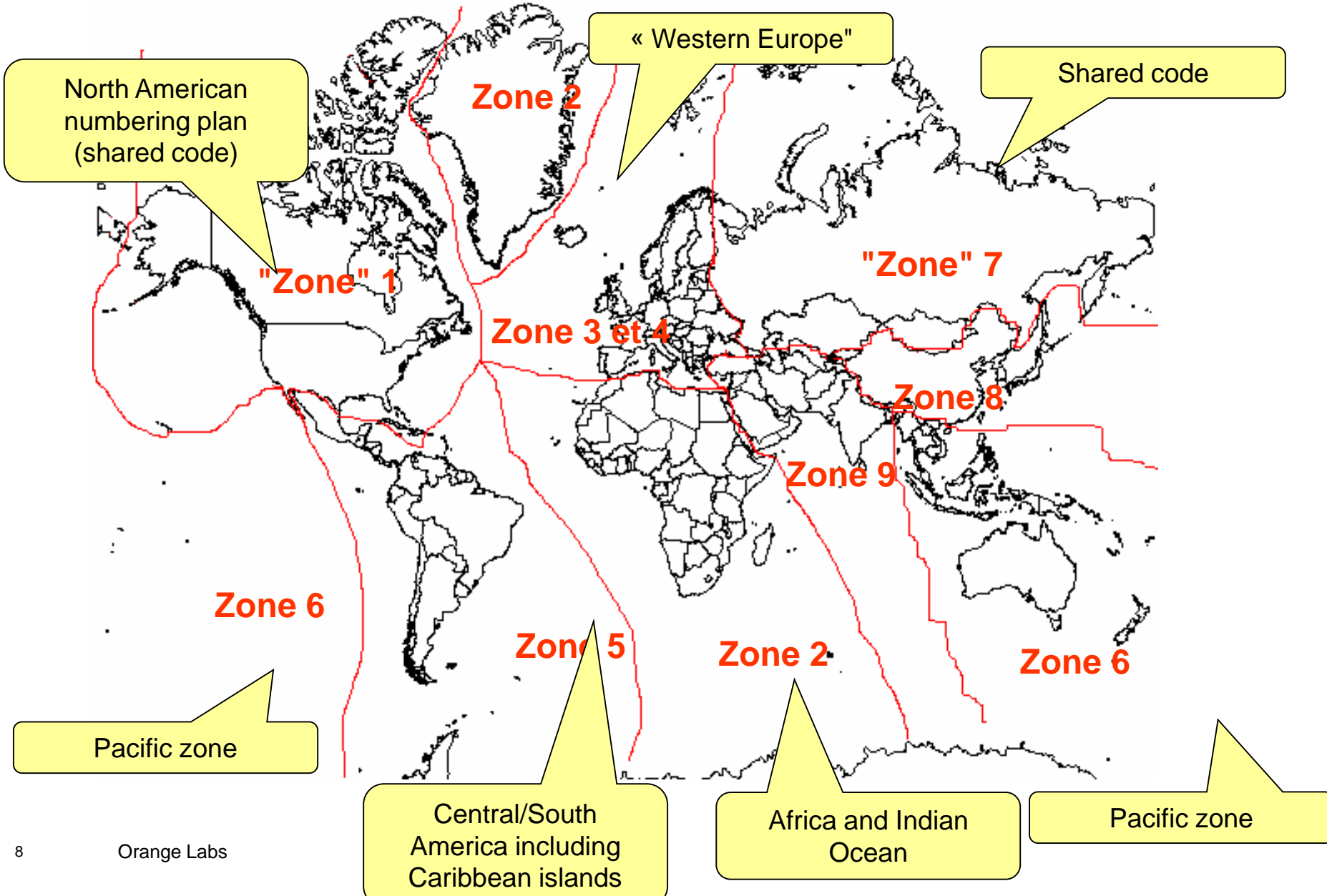
- SN assigned by service providers (operators, third parties...)

- Country Codes are both a geographic and tariff " marker"

General structure of the "French E.164 plan"

- The E.164 plan(s) consist of number of the form:
 - 9 (few), 11 (most), 12 (some) and 15 (few) digits
 - Generally noted I1I2(I3)(ZAB)PQMCDU(xyz)
- Also known as « E.164 numbering plan"...
 - So only « long » numbers belong to the E.164 numbering plan
 - Short numbers/codes, special numbers are not part of the international numbering plan
 - And as a result they cannot be dialled from abroad
 - Some numbers can't be dialled but are part of the E.164 numbering plan nonetheless
 - Ranges dedicated to mobile roaming belong the E.164 numbering plan ("MSRN")
 - *It's not because it's a valid number that it's routable/reachable*
- The breakout/structure between national and international is the result of a number successive decisions of (re)structuring the plan

Historic distribution of the E.164 numbering plan

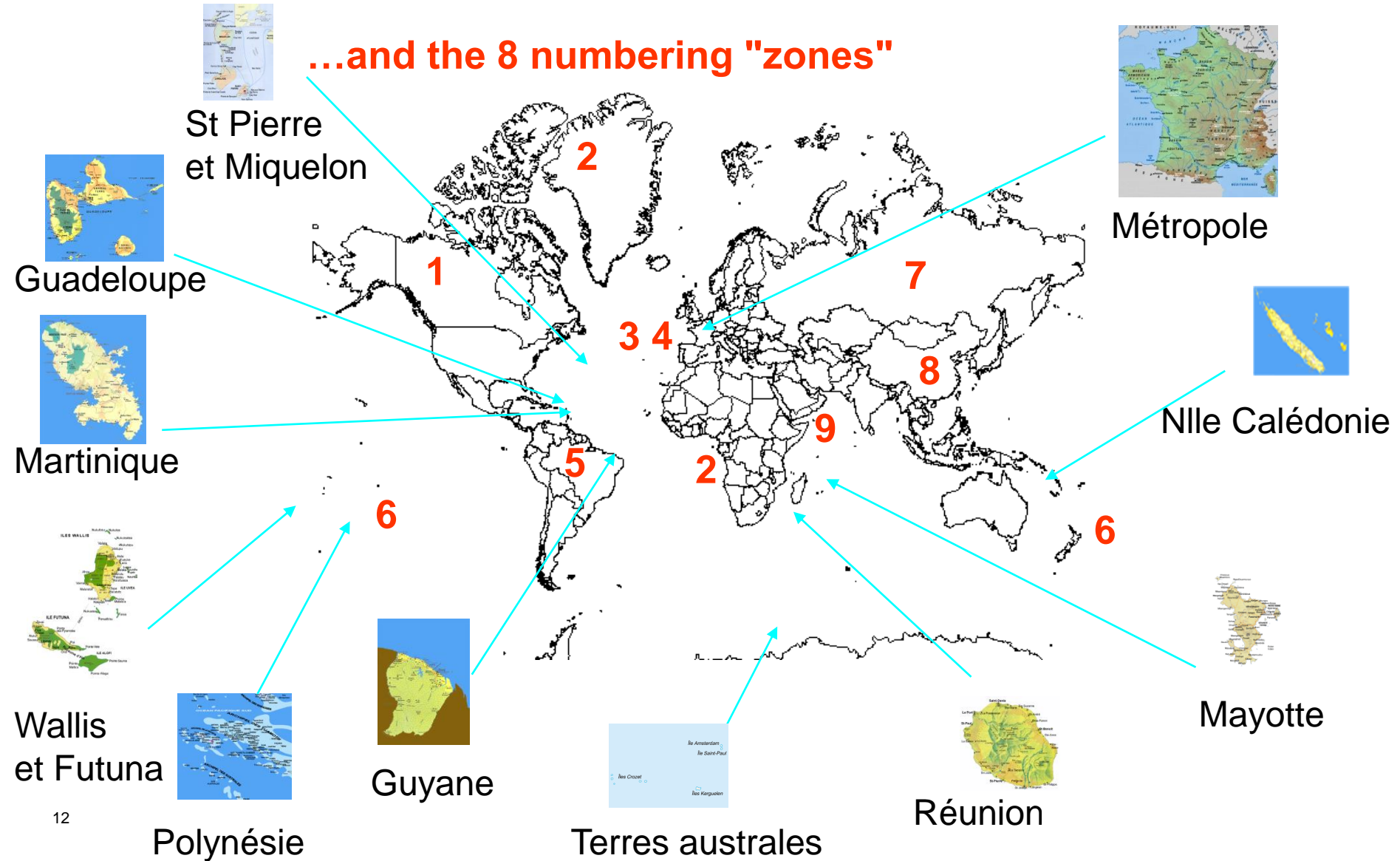


E.164: geographic distribution and "geopolitical dynamics"

- 1966
 - +37 is assigned to German Democratic Republic
- 1968 (White Book)
 - Mexico and Honduras leave the North American NP +1
 - Turkey leaves Zone 3 (*Europe*) to Zone 9 (*Middle East/Asia*)
- 1972 (Green Book)
 - Costa Rica, El Salvador, Honduras, Nicaragua and Panama leave Zone 1 for Zone 6 (*Central/south America*)
- 1989: German reunification: former German Democratic Republic joins +49
- After 1989, newly created countries within Zone 7 get their “own” CCs:
 - Zone 3 (*Europe*): 1993: Lituania, Latvia, Estonia, Moldova (etc.)
 - Zone 9 (*Moyen/Proche Orient - Asie*): Azerbaijan, Georgia
 - Kazakhstan remains +7 shared with Russia
- 1997: split of former Czechoslovakia: +42 is split into 3 digit CCs
- Split of former Yugoslavia: +38 is split: Serbia, Montenegro,...

Reminder: the geography of France....

...and the 8 numbering "zones"



France: geography and consequences for numbering

- 11 "regions"
 - Located in 5 different zones of the E.164 numbering plan**Consequence: they can't/couldn't use the same E.164 country code**
- A variety of regional statuses and degrees of autonomy, as a result of History

- So called Territories
- Departments (close integration)
- others

Consequence: several degrees of integration with the dialling plan of France

Examples:

Réunion island: fully integrated in the 10 digit dialling plan

Wallis et Futuna: autonomy and independent NP management

Mayotte: originally shared with Republic of Comoros and then integrated within the national dialling plan and +262 as a consequence of the change of

status

The French E.164 country codes

+33 is a French country code, not the Country Code for France as a Member State.

+508

St Pierre
et Miquelon

+590

Guadeloupe

+596

Martinique

+681

Wallis
et Futuna

+689

Polynésie

+594

Guyane

+262

Réunion

Terres Australes et Antarctiques

+33

Métropole

+687

Nlle Calédonie

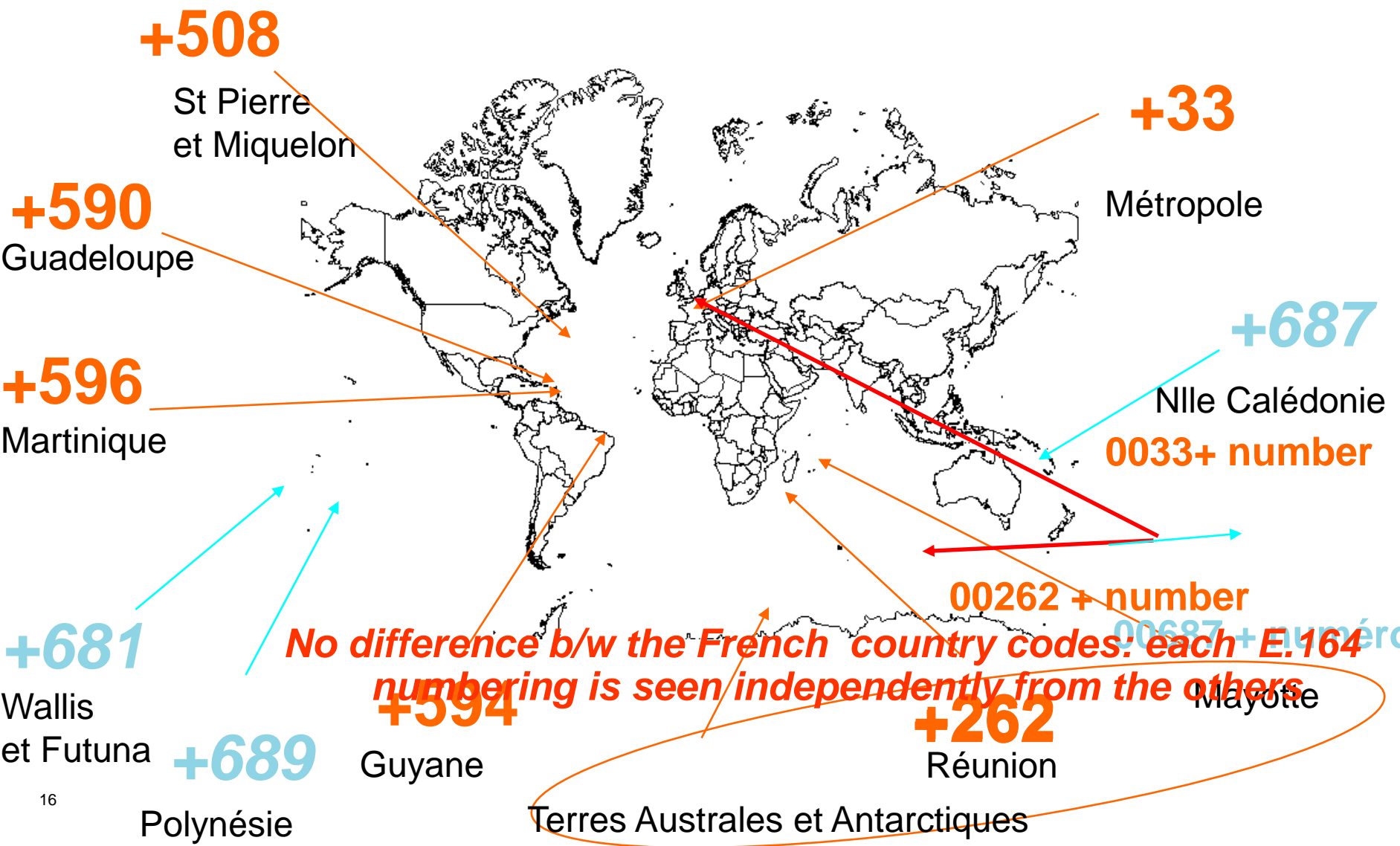
Mayotte



French E.164 Country codes: from CCIT to today

- *The structure of the numbering plan for France is the result of a series of successive assignments:*
- 1960 « Red book": +33 Metropolitan France
- 1964 « Blue book"
 - +262: Réunion,
 - +594: Guyane,
 - +689: Polynésie,
 - +687: Nlle Calédonie
- 1968 "White book" : +681 - Wallis et Futuna
- 1976 « Orange book" : +590 : Guadeloupe, +596 : Martinique
- 1984 : +508 Saint Pierre et Miquelon (formely with +1...)

Calls from abroad



2. The national numbering plan



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General structure

- The dialling plan of France is
 - Closed (no local / regional dialling procedures)
 - 10 digit numbers, generally represented as 0ZABPQMCDU
 - It covers all 6 E.164 country codes:
 - Métropolitain France
 - Martinique
 - Guadeloupe
 - Guyane
 - Réunion, Terres Australes and Antarctiques Françaises, Mayotte
 - Saint Pierre et Miquelon*
- Calls within this plan (6 integrated CCs) can be made with a national dialling format with 10 digits
- Calls within a country code are also 10 digit *
- Other French territories are reachable only through the international (dialling) format (Polynésie, Wallis et Futuna, Nlle Calédonie) |
 - from France and from abroad

Two types of E.164 country codes

- CCs integrated to the 10 digit dialling plan
- CCs *outside of the 10 digit dialling plan*

+508

St Pierre
et Miquelon

+590

Guadeloupe

+596

Martinique

+681

Wallis
et Futuna

+689

Polynésie

+594

Guyane

+262

Réunion

+33

Métropole

+687

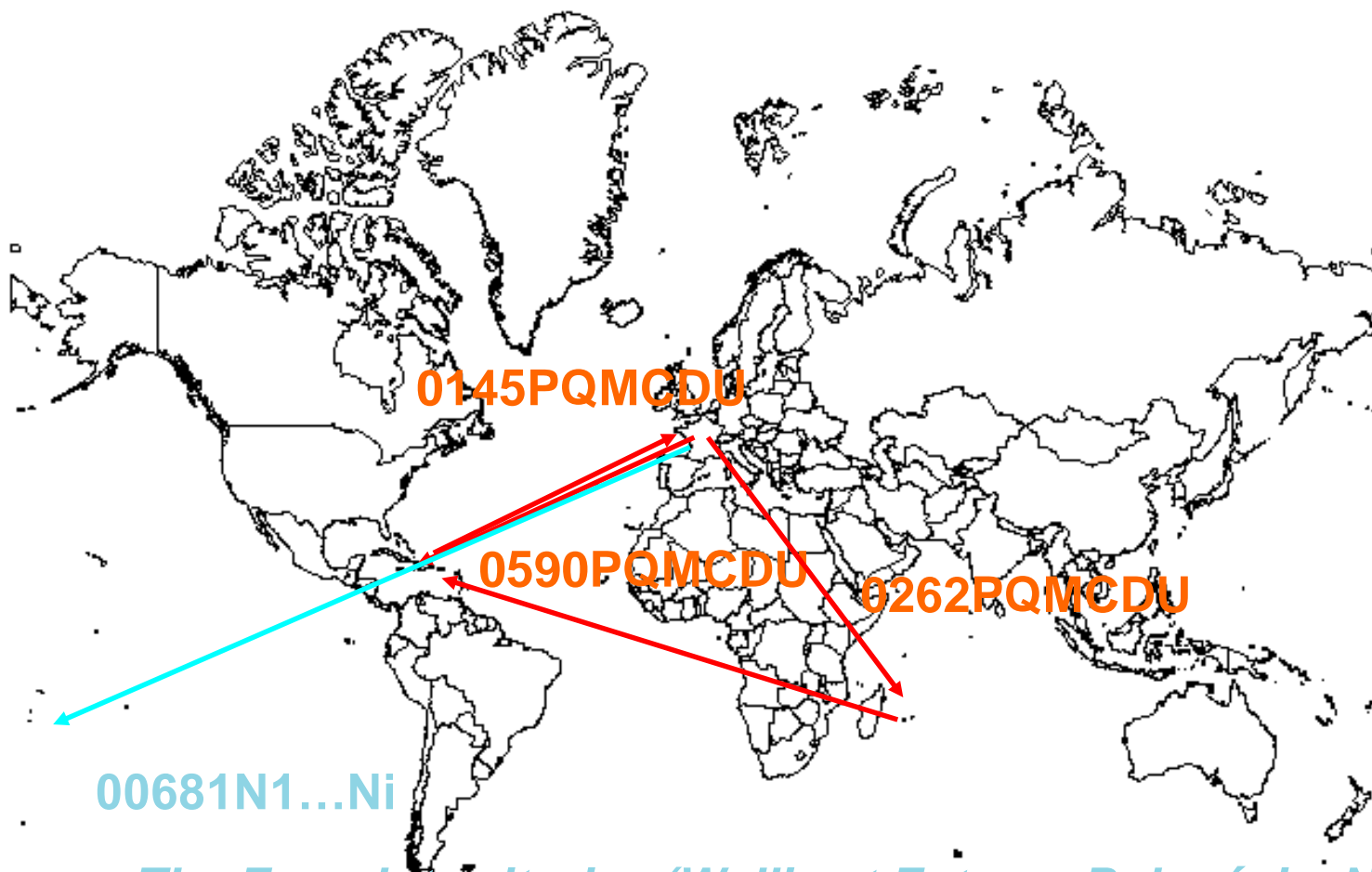
Nlle Calédonie

Mayotte

Terres australes

France de l'Océan Indien

Overseas department calls from the caller's perspective



The French territories (Wallis et Futuna, Polynésie, Nlle Calédonie) belong to the E-164 numbering plan of France numbers regardless of origin, destination but they do not belong to the 10 digit dialling plan

Mapping b/w dialling and numbering

In what sense does the dialling “integrate” the 5 CCs

National format

Dialling

0ZABPQMCDU

International format E.164

numbering

111213ZABPQMCDU

How can we map the 111213 (CC) ie the Country code to the national dialling format?

⇒ *The value of the E.164 country code depends on the value of the ZAB or ZABP*

- For example, ZAB=590 and 690 are under E.164 Country Code 590.

A brief history of the dialling plan

- The dialling plan of France results from a series/history of changes :
 - **1955**: dialling structure in (AB) PQMCDU and (A) BPQMCDU (IdF)
 - **1996**: the dialling plan is closed and becomes 10 digit based
 - Paris/province call dialling 16 (1)ABPQMCDU ceases to exist
 - 0Z is added to ABPQMCDU to identify a "region"
 - New range for mobile
 - **2001** : the overseas departments join the 10 digit dialling plan
 - Change to E.164 à 3/2+9 digit format
 - Distinction between fixed and mobile

=> assignment of separate ZAB(P) value to each DOM+service (ex. Réunion+mobile: ZAB=692, Réunion landlines :ZAB=590)
 - **2005** : Z=9 is opened for non geographic numbers (in practice set-top boxes)
 - **2008** : Change of Mayotte 269 to 262
 - **2009/2010** : Z=7 is opened
 - **2011/2012** : M2M extension for Z=7, for Metropolitan and overseas departments
 - All other decisions are not directly relative to the structure (policies, portability...)

Mapping DOM ⇔ international format (M2M omitted)

Numérotation abonné	Plan de numérotage
0ZABPQMCUD	11213ZABPQMCUD

Nature de la tranche	Numérotation abonné	Plan de numérotage
France de l'océan indien - landlines	02 62 PQ MC DU	+262262PQMCDU
Mayotte – landlines	02 69 PQ MC DU	+262269PQMCDU
Guyane – landlines	05 94 PQ MC DU	+594594PQMCDU
Martinique – landlines	05 96 PQ MC DU	+596596PQMCDU
Guadeloupe	05 90 PQ MC DU	+590590PQMCDU
Réunion – mobile	06 92 PQ MC DU	+262692PQMCDU
Mayotte – mobile	06 39 PQ MC DU	+262639PQMCDU
Guyane mobile	06 94 PQ MC DU	+594694PQMCDU
Martinique - mobile	06 96 PQ MC DU	+596696PQMCDU
Guadeloupe mobile	06 90 PQ MC DU	+590690PQMCDU
Réunion+TAAF+Mayotte - Non geographic	09 76 2Q MC DU 09 76 3Q MC DU 09 76 9Q MC DU	+2629762QMCDU +2629763QMCDU +2629769QMCDU
Guyane - Non geographic	09 76 4Q MC DU 09 76 5Q MC DU	+5949764QMCDU +5949765QMCDU
Martinique - Non geographic	09 76 6Q MC DU 09 76 7Q MC DU	+5969766QMCDU +5969767QMCDU
Guadeloupe – non geographic	09 76 0Q MC DU 09 76 1Q MC DU 09 76 8Q MC DU	+5909760QMCDU +5909761QMCDU +5909768QMCDU

E.212 identification plan



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E.212 Mobile Network Codes for France – similar geography => similar structure

308

St Pierre
et Miquelon

208

Métropole

340

Guadeloupe

546

Nlle Calédonie

340

Martinique

543

Wallis
et Futuna

547

Polynésie

742

Guyane

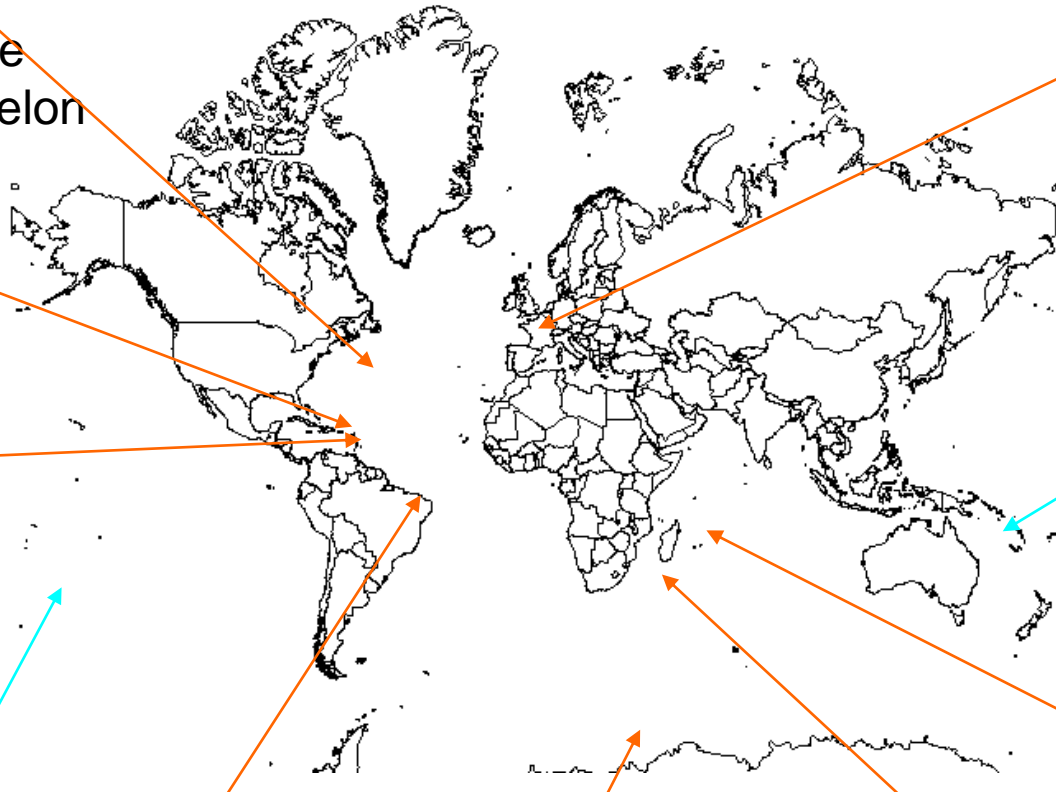
647

Réunion

Mayotte

Terres australes

France de l'Océan Indien



E.212 identification plan overview

- Main concepts – on all Mobile Country Codes: 208, 740, 742, 647 and 308
- Several categories and formats of Mobile Network Codes
 - Mainstream Mobile Network Codes for mobile operators
 - Including a cross territory use for 340
 - MNCs for tests (shared codes)
 - MNCs for « critical infrastructures »(interior and defense ministries)
 - MNCs for fixed Internet radio access (3 digits)
 - Private Mobile Networks (3 digits)
 - MNCs for restricted national roaming

MCC 208

Source:

<https://extranet.arcep.fr/portail/Op%C3%A9rateursCE/Num%C3%A9rotation.aspx>

MCC-MNC	Mnémo	Nom	Date_Attribution	Décision_Attribution
20801	FRTE	Orange	01/01/2017	2016-1702
20802	FRTE	Orange	01/01/2017	2016-1702
20803	MOQU	Mobiquthings	24/04/2012	2012-0495
20804	SIST	Société d'ingénierie système télécom et réseaux (SISTEER)	24/04/2012	2012-0496
20805	GLOB	Globalstar Europe SARL	22/04/2003	2003-0530
20806	GLOB	Globalstar Europe SARL	22/04/2003	2003-0530
20807	GLOB	Globalstar Europe SARL	22/04/2003	2003-0530
20808	SFR0	Société française du radiotéléphone	04/02/2016	2016-0134
20809	SFR0	Société française du radiotéléphone	08/12/2011	2011-1436
20810	SFR0	Société française du radiotéléphone	08/12/2011	2011-1436
20811	SFR0	Société française du radiotéléphone	08/12/2011	2011-1436
20813	SFR0	Société française du radiotéléphone	08/12/2011	2011-1436
20814	ARCEP	Usage ARCEP	13/11/2015	
20815	FRMO	Free mobile	23/02/2010	2010-0264
20816	FRMO	Free mobile	24/07/2012	2012-0980
20817	LEGO	Legos	16/07/2013	2013-0927
20818	ARCEP	Usage ARCEP	09/03/2018	
20819	CPOD	Altitude infrastructure	29/01/2018	2018-0068
20820	BOUY	Bouygues Telecom	18/07/2001	2001-0720
20821	BOUY	Bouygues Telecom	18/07/2001	2001-0720
20822	TRAT	Transatel	09/11/2006	2006-1109
20823	SYCN	Syndicat mixte ouvert Charente numérique	12/04/2018	2018-0415
20824	MOQU	Mobiquthings	17/12/2015	2015-1410
20825	LYCA	Lycamobile SARL	17/03/2011	2011-0303
20826	NRJ	Euro-Information telecom	21/07/2011	2011-0865
20827	CORI	Coriolis telecom SAS	16/02/2017	2017-0195
20828	ASSA	Airbus defence and space SAS	13/10/2011	2011-1197
20829	CTFR	Cubic telecom France	30/08/2018	2018-1066
20830	SYMA	Syma mobile	13/03/2012	2012-0356
20831	MUND	Vectone mobile	24/04/2012	2012-0487
20832	FRTE	Orange	01/06/2018	2018-0340
20833	CG64	Département des Pyrénées-Atlantiques	12/04/2018	2018-0428
208700	INFS	Weaccess group	27/09/2018	2018-1189
20885	ART	Usage collectif	28/08/2018	
20886	SEM@	SEM@FOR77	31/07/2018	2018-0938
20887	RATP	Régie autonome des transports parisiens	26/08/2018	2018-0887
20888	BOUY	Bouygues Telecom	16/09/2003	2003-1029
20890	ART	Usage collectif	09/03/2018	
20891	FRTE	Orange	01/01/2017	2016-1702
20892	ART	Usage collectif	09/03/2018	
20893	THAL	Thales communications & Security SAS	05/04/2018	2018-0366
20894	HALY	Halys	28/01/2016	2016-0093
20895	FRTE	Orange	25/06/2018	2018-0595
20897	THAL	Thales communications & Security SAS	19/10/2018	2018-1133
20898	SOAF	Société Air France	12/07/2018	2018-0686
20899	ARCEP	Usage ARCEP	09/03/2018	

MCC 308, 340, 647, 742

30801	SPMT	SAS SPM Telecom	18/07/2001	2001-0726
30802	GLOA	Globaltel	23/04/2013	2013-0551
30818	ARCEP	Usage ARCEP	20/03/2018	
30885	ART	Usage collectif	28/08/2018	
30890	ART	Usage collectif	20/03/2018	
30892	ART	Usage collectif	20/03/2018	
30899	ARCEP	Usage ARCEP	20/03/2018	
34001	ORCA	Orange Caraïbe	18/07/2001	2001-0721
34002	OUTR	Outremer Telecom	18/07/2001	2001-0724
34003	STMB	United telecommunication services Caraïbe	31/01/2002	2002-0099
34008	DAUF	Dauphin telecom	03/12/2002	2002-1094
34009	FRCA	Free Caraïbe	22/02/2018	2018-0205
34010	GTPM	GUADELOUPE TELEPHONE MOBILE	03/07/2008	2008-0766
34011	GYPM	GUYANE TELEPHONE MOBILE	03/07/2008	2008-0764
34012	MTPM	MARTINIQUE TELEPHONE MOBILE	03/07/2008	2008-0762
34018	ARCEP	Usage ARCEP	20/03/2018	
34020	BUYC	Digicel Antilles Françaises Guyane	02/06/2016	2016-0723
34085	ART	Usage collectif	28/08/2018	
34090	ART	Usage collectif	20/03/2018	
34092	ART	Usage collectif	20/03/2018	
34099	ARCEP	Usage ARCEP	20/03/2018	
64700	FRTE	Orange	01/01/2017	2016-1702
64701	BJTP	BJT Partners	22/11/2011	2011-1365
64702	TELC	Telco OI	25/06/2015	2015-0670
64703	TELC	Telco OI	25/02/2016	2016-0219
64704	ZEMO	Zeop mobile	01/05/2017	2017-0431
64710	SRR	Société réunionnaise du radiotéléphone	18/07/2001	2001-0727
64718	ARCEP	Usage ARCEP	20/03/2018	
64785	ART	Usage collectif	28/08/2018	
64790	ART	Usage collectif	20/03/2018	
64792	ART	Usage collectif	20/03/2018	
64799	ARCEP	Usage ARCEP	20/03/2018	
74218	ARCEP	Usage ARCEP	20/03/2018	
74285	ART	Usage collectif	28/08/2018	
74290	ART	Usage collectif	20/03/2018	
74292	ART	Usage collectif	20/03/2018	
74299	ARCEP	Usage ARCEP	20/03/2018	

Source:

<https://extranet.arcep.fr/portail/Op%C3%A9rateursCE/Num%C3%A9rotation.aspx>

Conclusion



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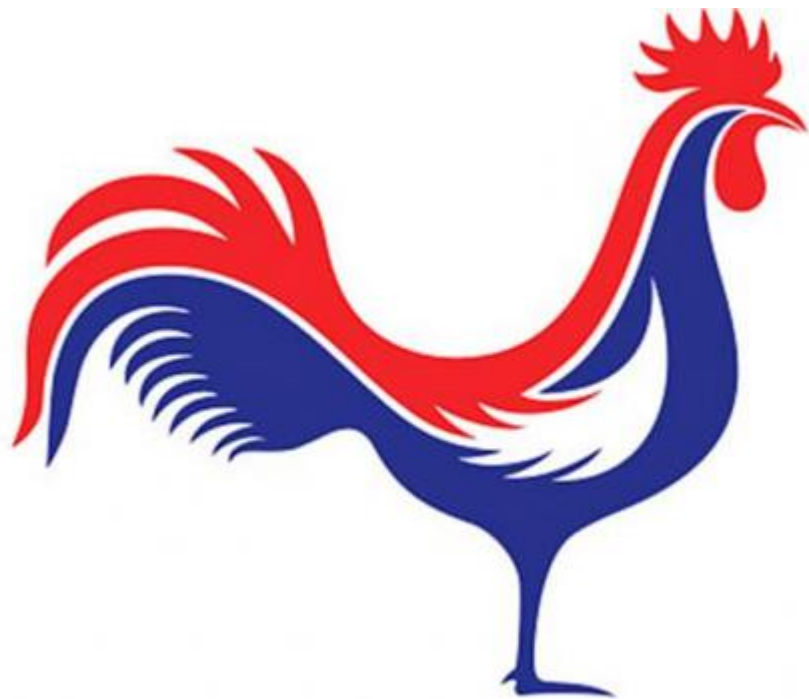


Key takeaways

- National and international formats are intertwined
- They convey structuring choices
 - Which sometimes result from conflicting constraints: political demands, economic incentives, network constraints, tariff transparency etc.
 - Of choice made at a different time, with different technologies
 - Which users are familiar with
- Restructuring national dialling plans is *never* a blank slate exercise
 - They will continue to evolve over time
 - None of them are set in stone
 - They should be in-synch with technological change including network constraints

References

- International country codes
<https://www.itu.int/en/publications/ITU-T/Pages/publications.aspx?parent=T-SP&view=T-SP2>
- National numbering policies (revised July 2018)
https://www.arcep.fr/uploads/tx_gsavis/18-0881.pdf



Merci !

Source; tv5monde.com



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