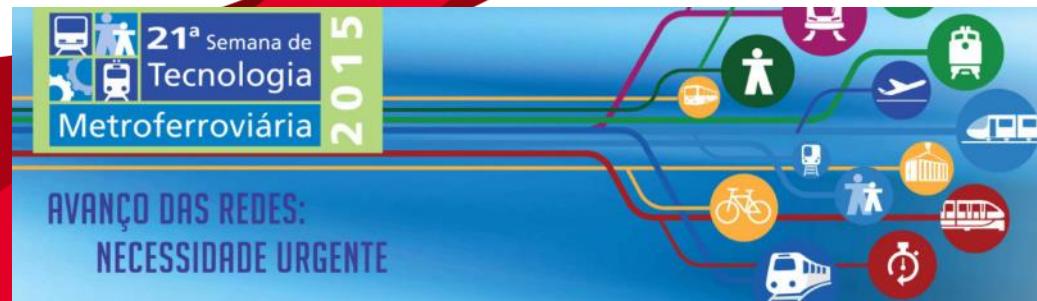
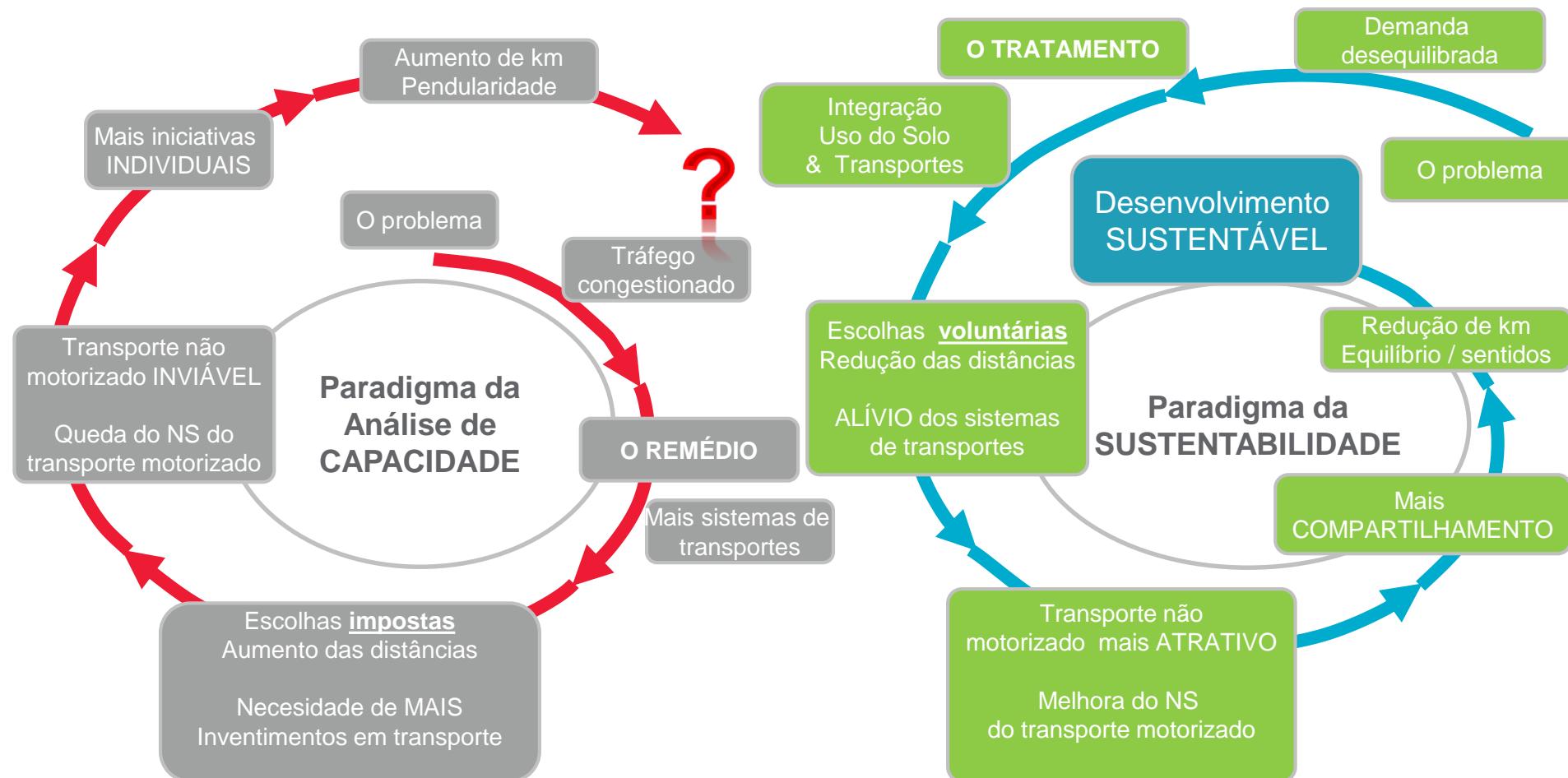


SISTEMAS DE TRANSPORTES & MODELOS DE SIMULAÇÃO

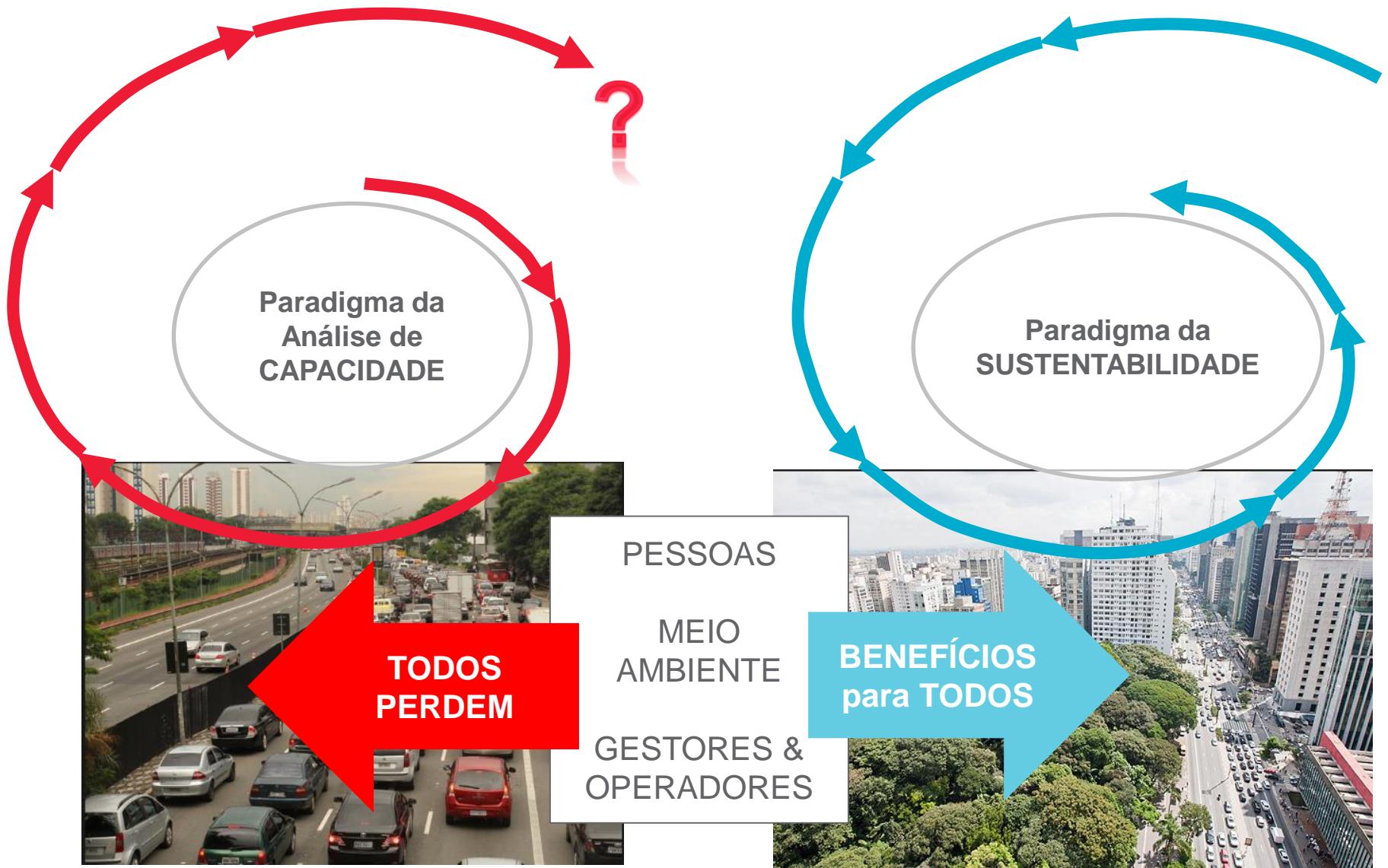
Tarifa Pública & Tarifa de Remuneração



O DESAFIO



O DESAFIO



COMO NOVOS MODELOS DE SIMULAÇÃO PODEM CONTRIBUIR OU COMPLEMENTAR O QUE VEM SENDO SIMULADO?



COMO NOVOS MODELOS DE SIMULAÇÃO PODEM CONTRIBUIR?



Inserindo nesses novos modelos alguns procedimentos que tradicionalmente são feitos externamente aos modelos de simulação



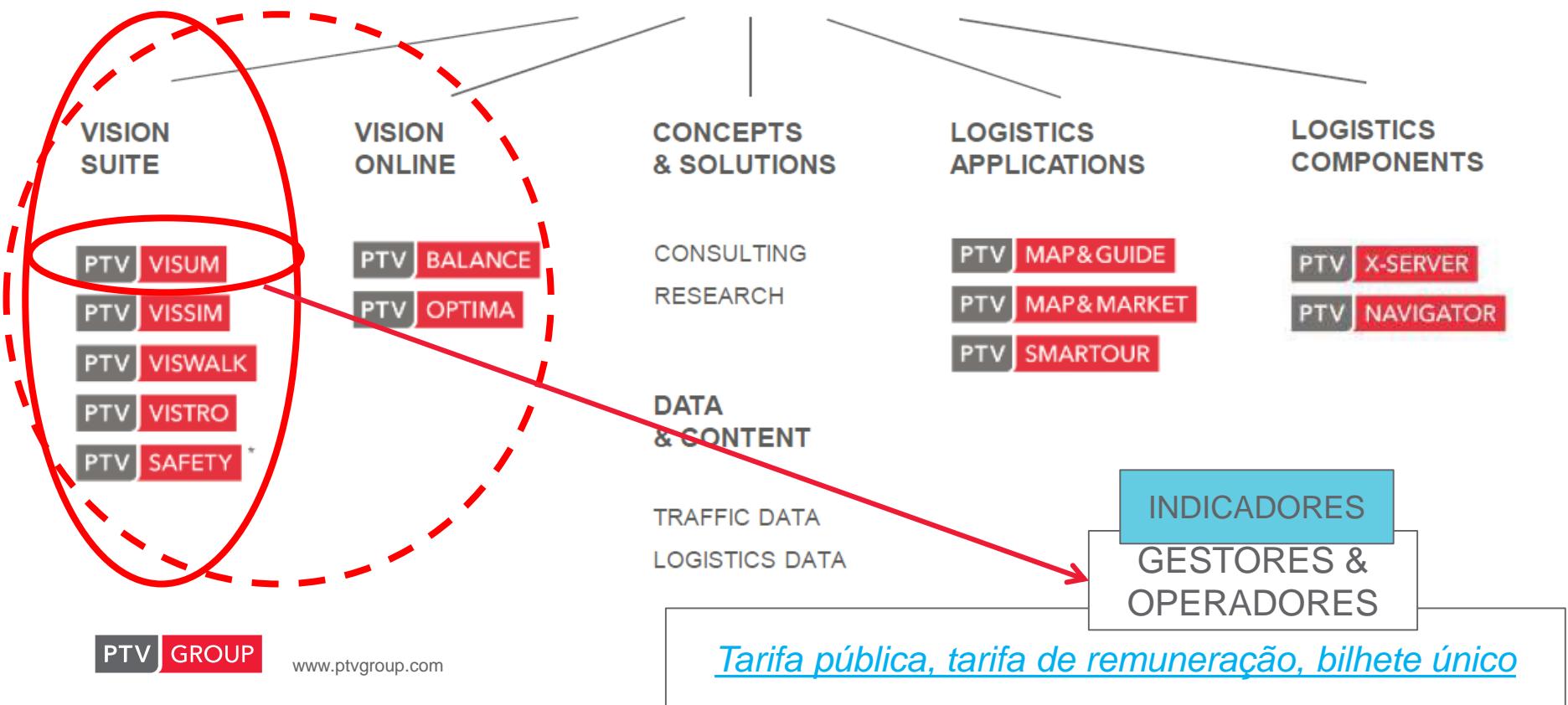
MODELOS DE SIMULAÇÃO INTEGRADOS

Uma visão geral dos produtos e serviços

MODELOS DE SIMULAÇÃO INTEGRADOS



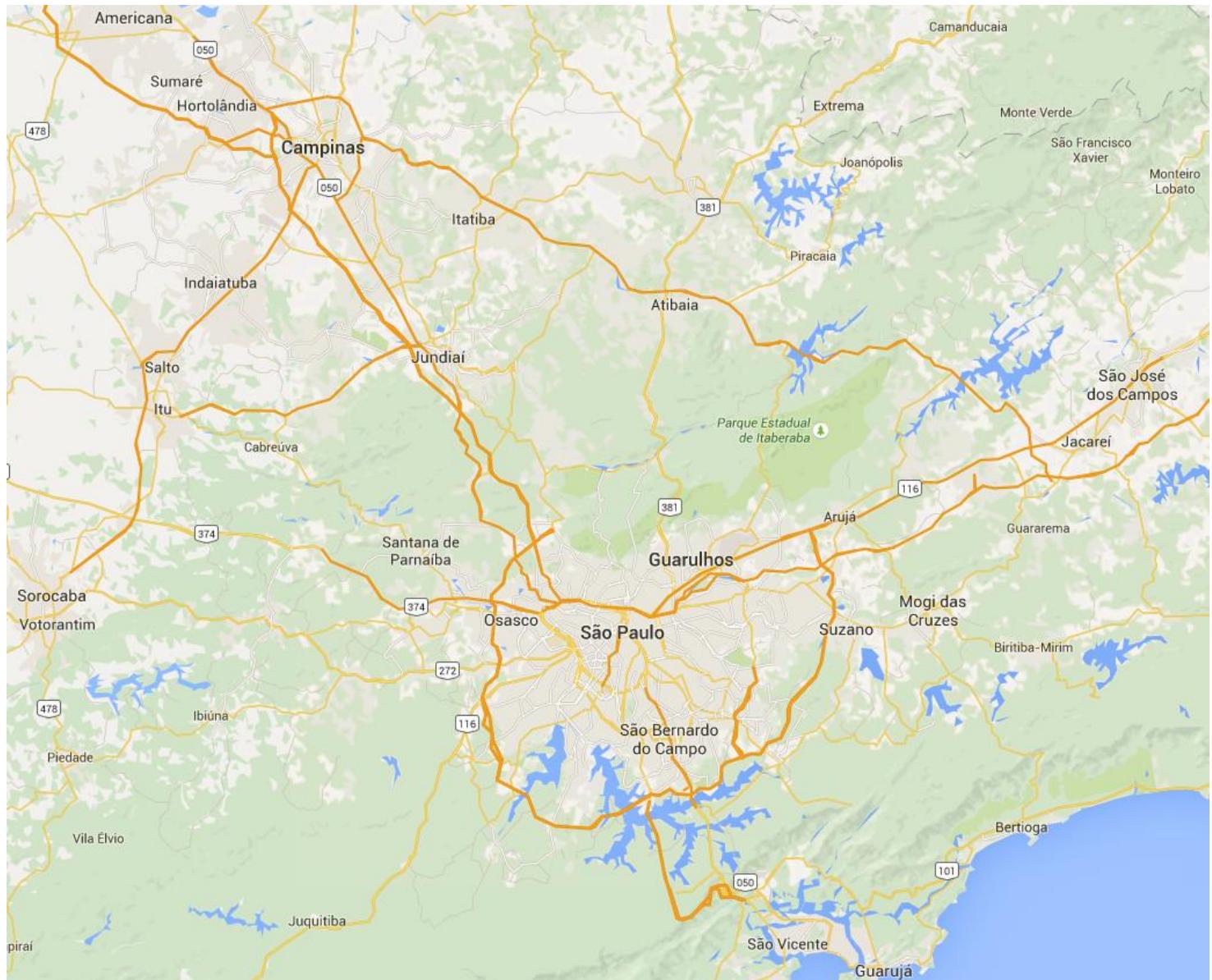
- ▶ Concepts & Solutions
- ▶ Data & Content
- ▶ Software & Services



MODELOS DE SIMULAÇÃO INTEGRADOS

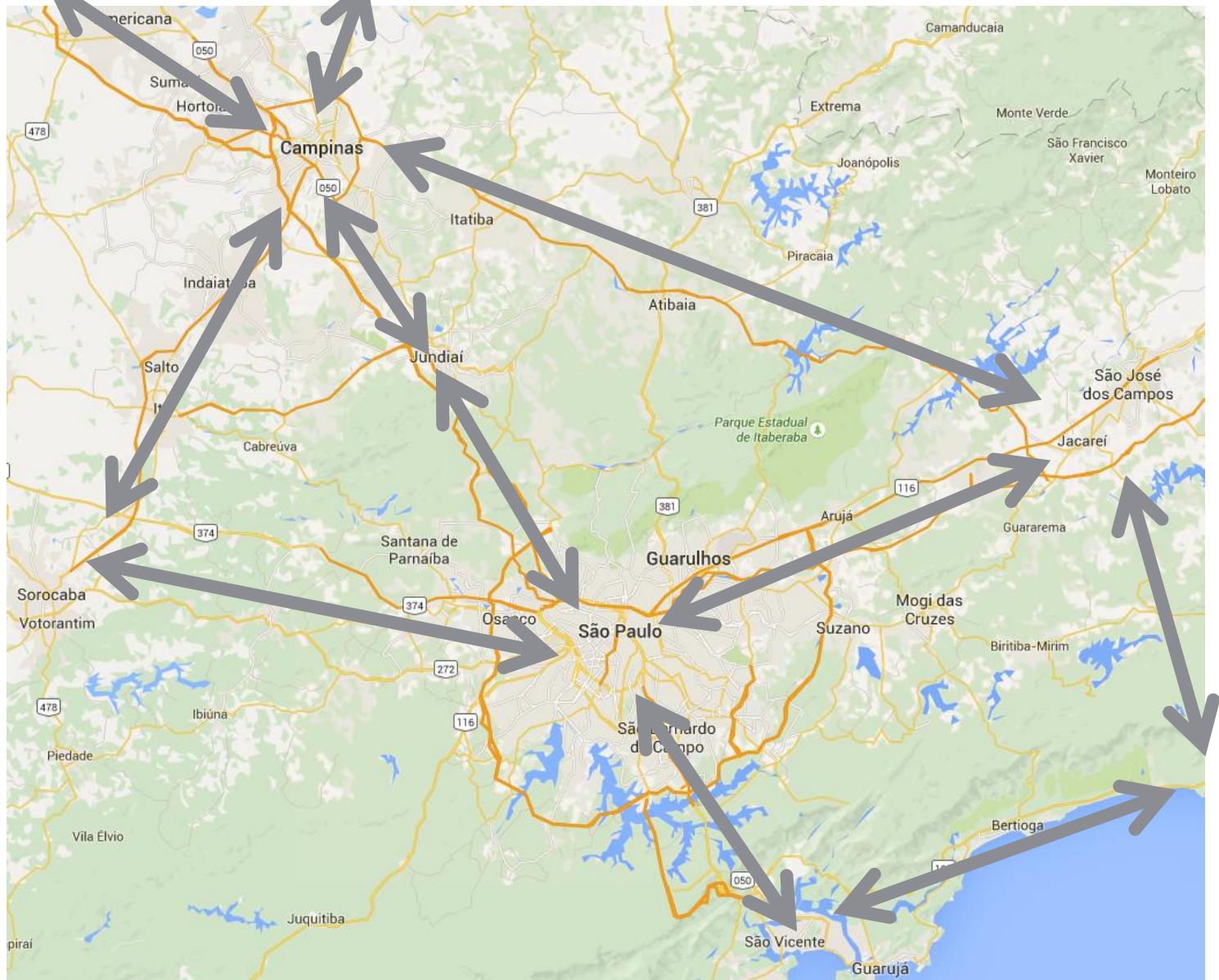


MODELOS DE SIMULAÇÃO INTEGRADOS



MODELOS DE SIMULAÇÃO INTEGRADOS

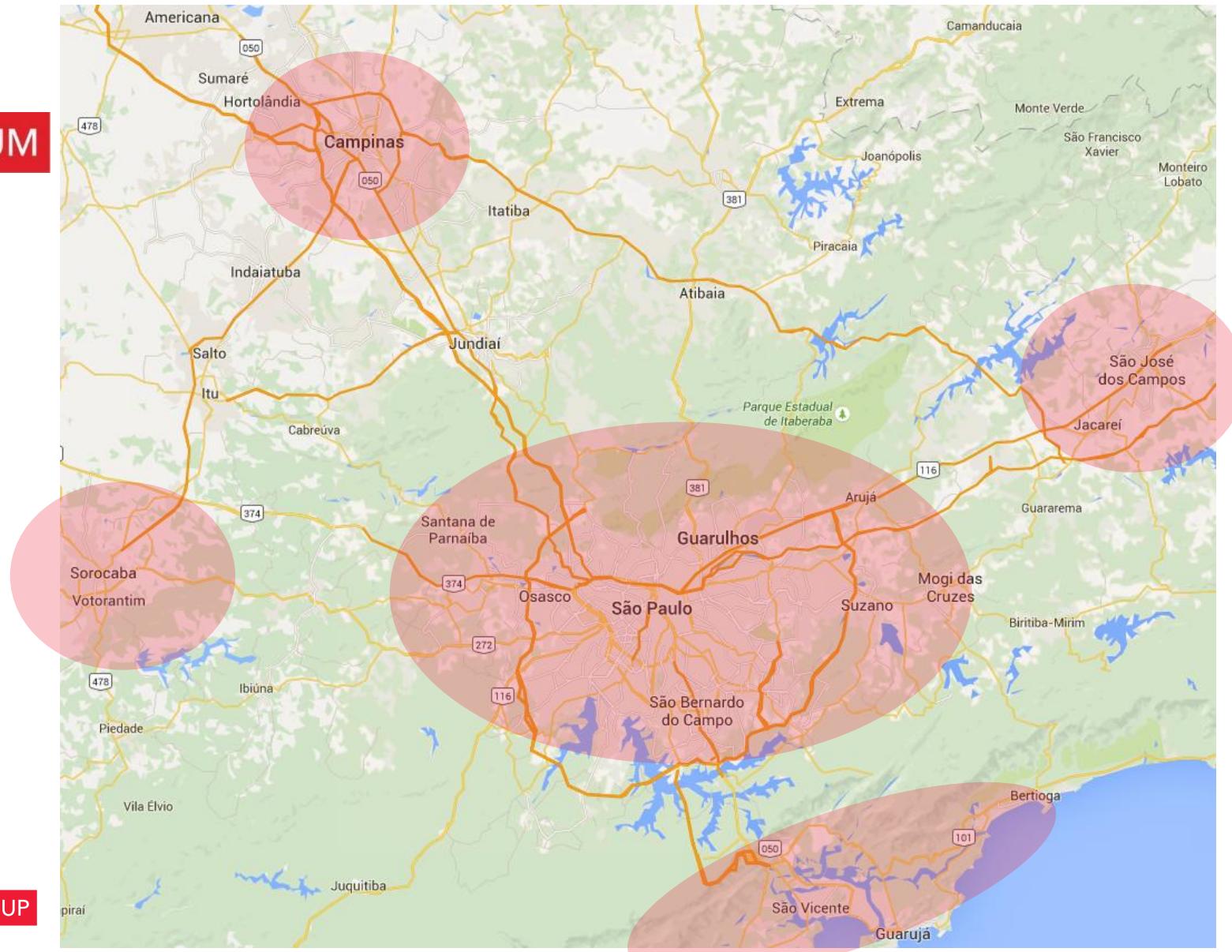
PTV VISUM



PTV GROUP

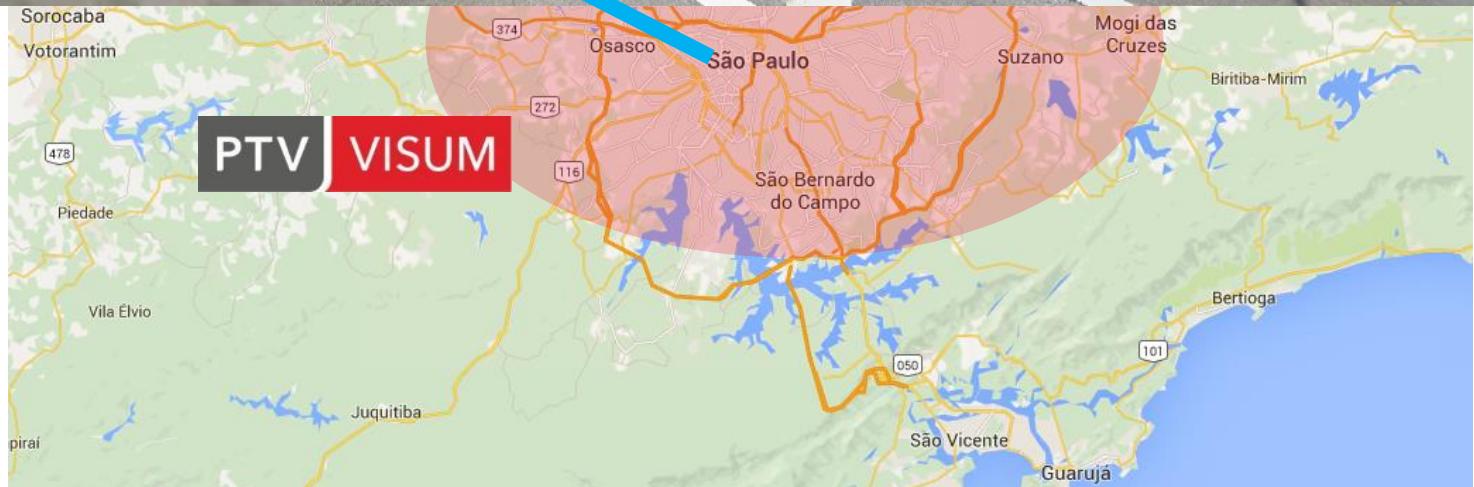
MODELOS DE SIMULAÇÃO INTEGRADOS

PTV VISUM

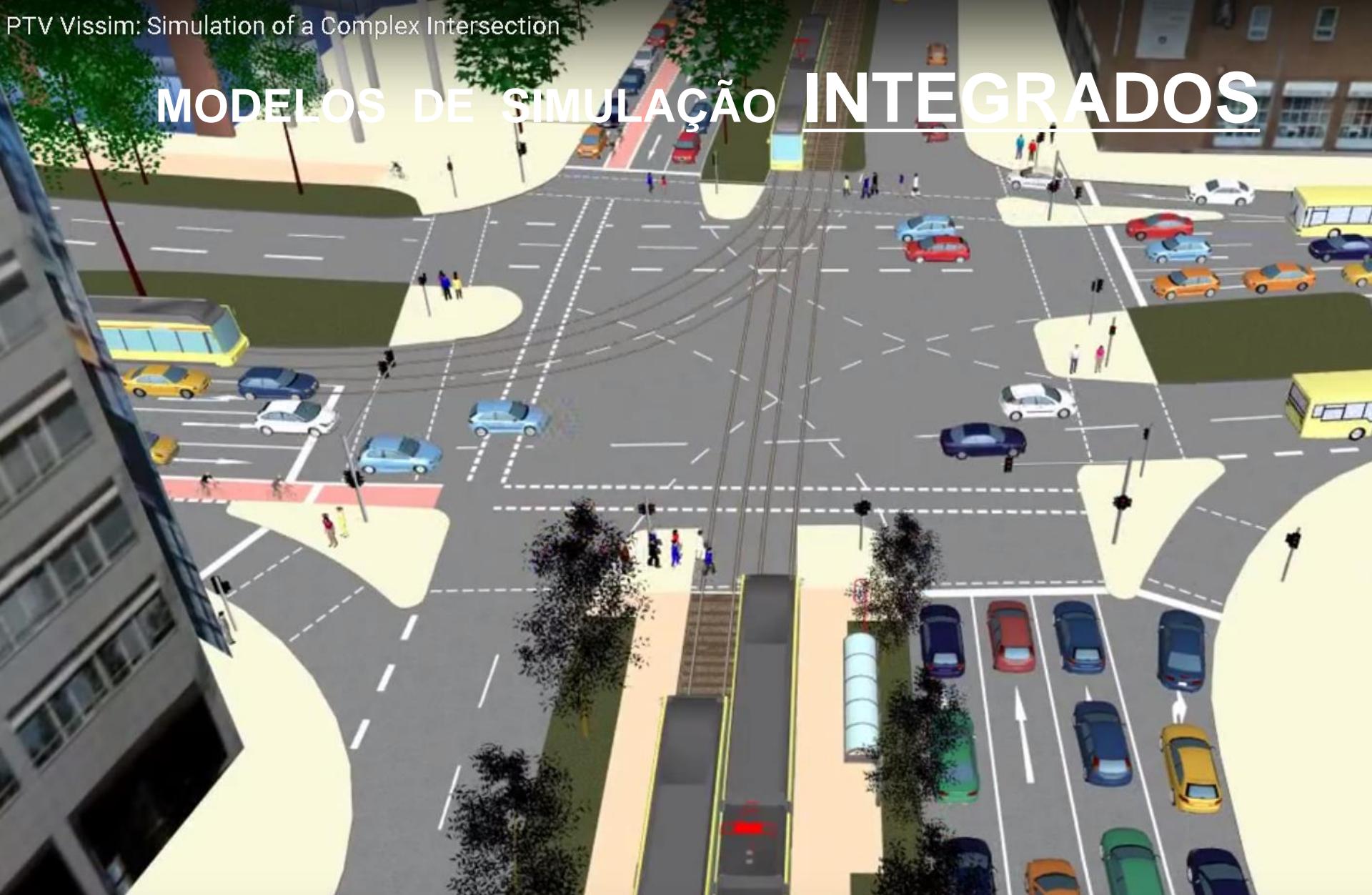


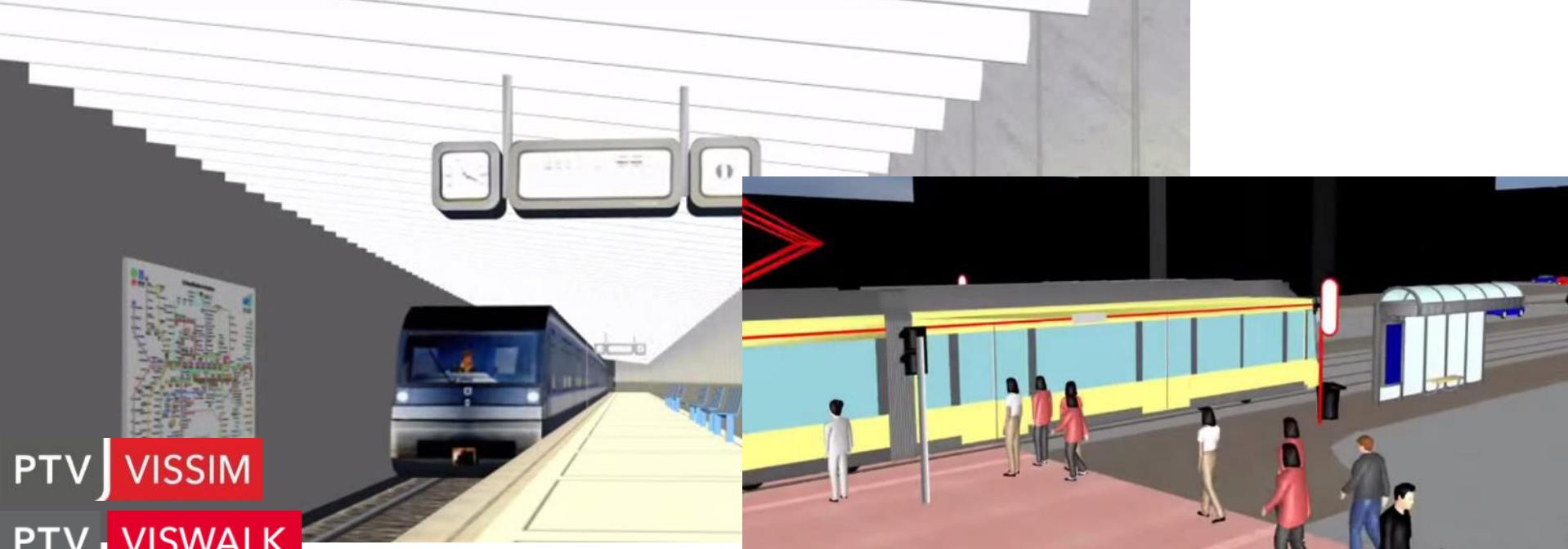
PTV GROUP

MODELOS DE SIMULAÇÃO INTEGRADOS

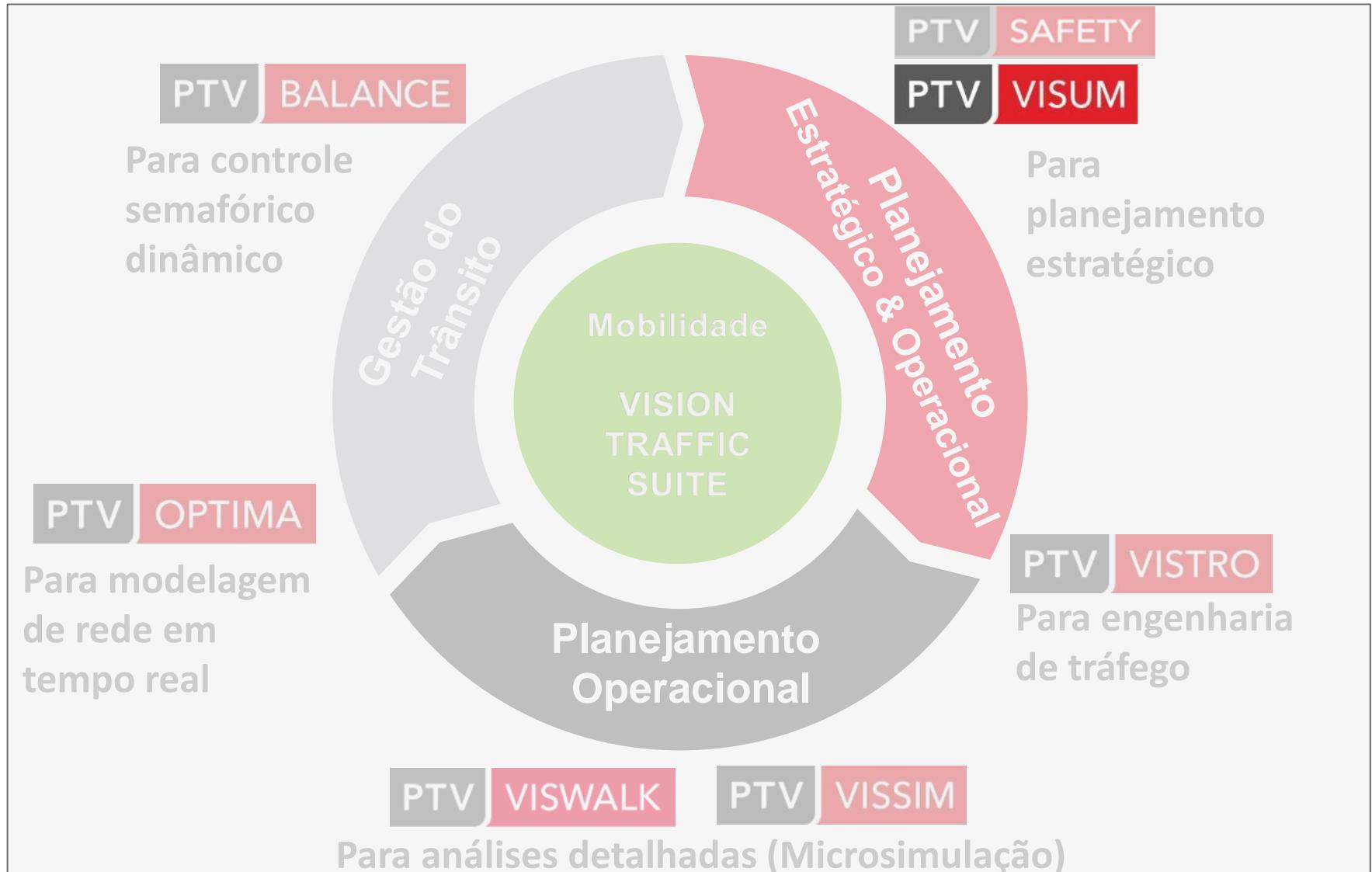


MODELOS DE SIMULAÇÃO INTEGRADOS





MODELOS DE SIMULAÇÃO INTEGRADOS



MODELOS DE SIMULAÇÃO INTEGRADOS

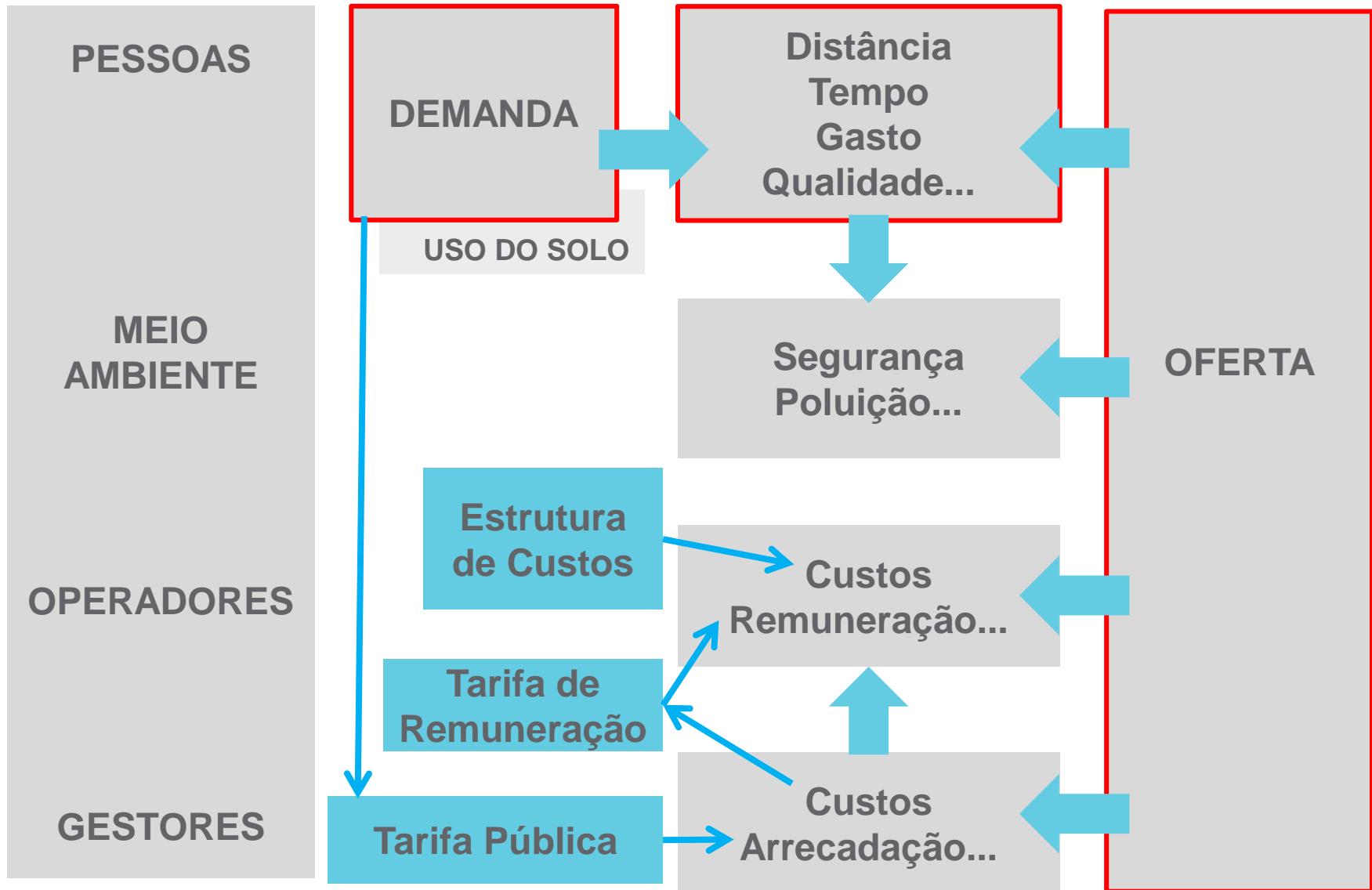
Uma visão geral do conjunto de informações

*Análise de rede
e/ou*

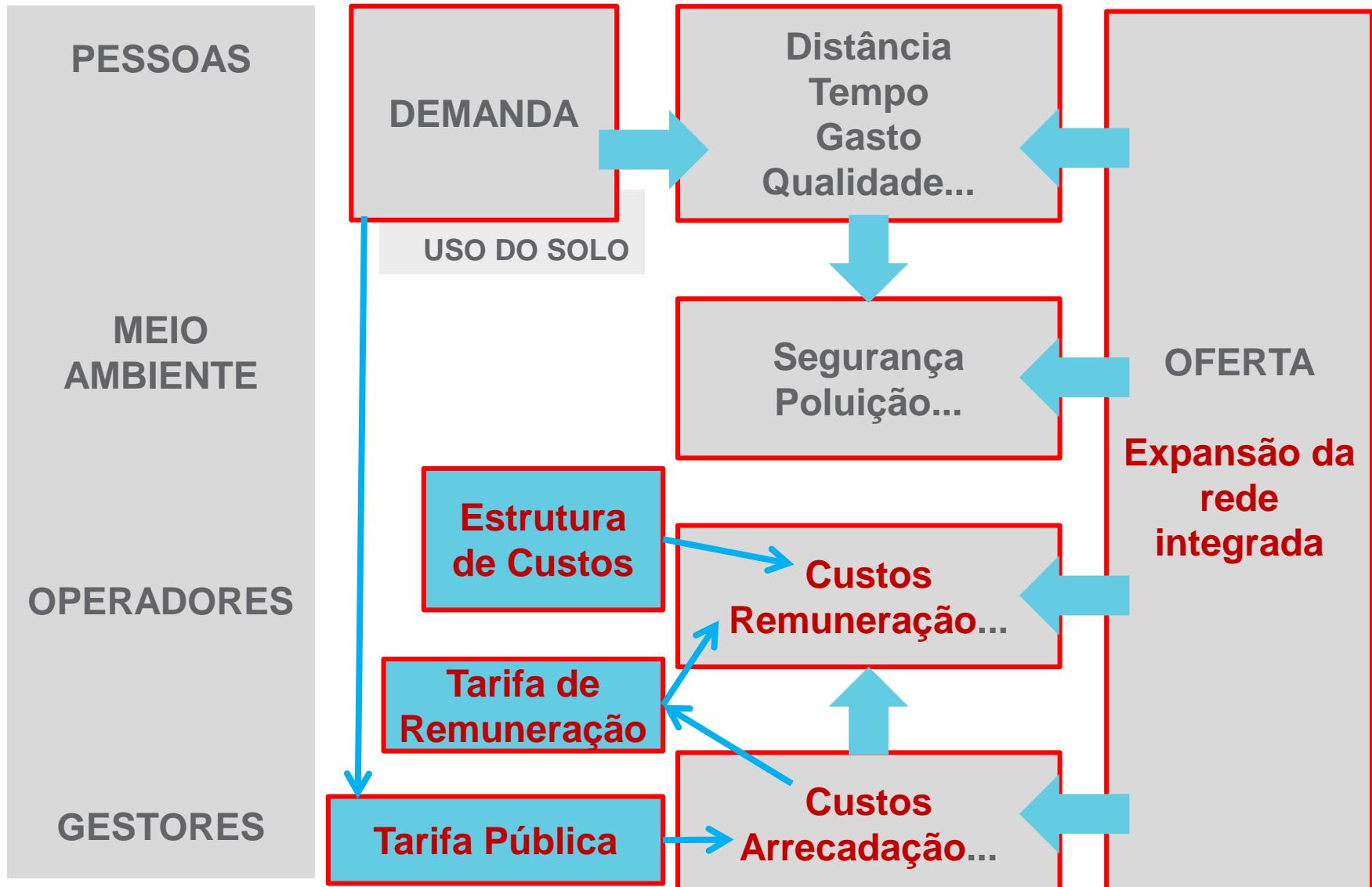
Análise de um novo serviço

*Incorporando na simulação a análise
sob a ótica dos gestores e operadores*

MODELOS DE SIMULAÇÃO PTV VISUM



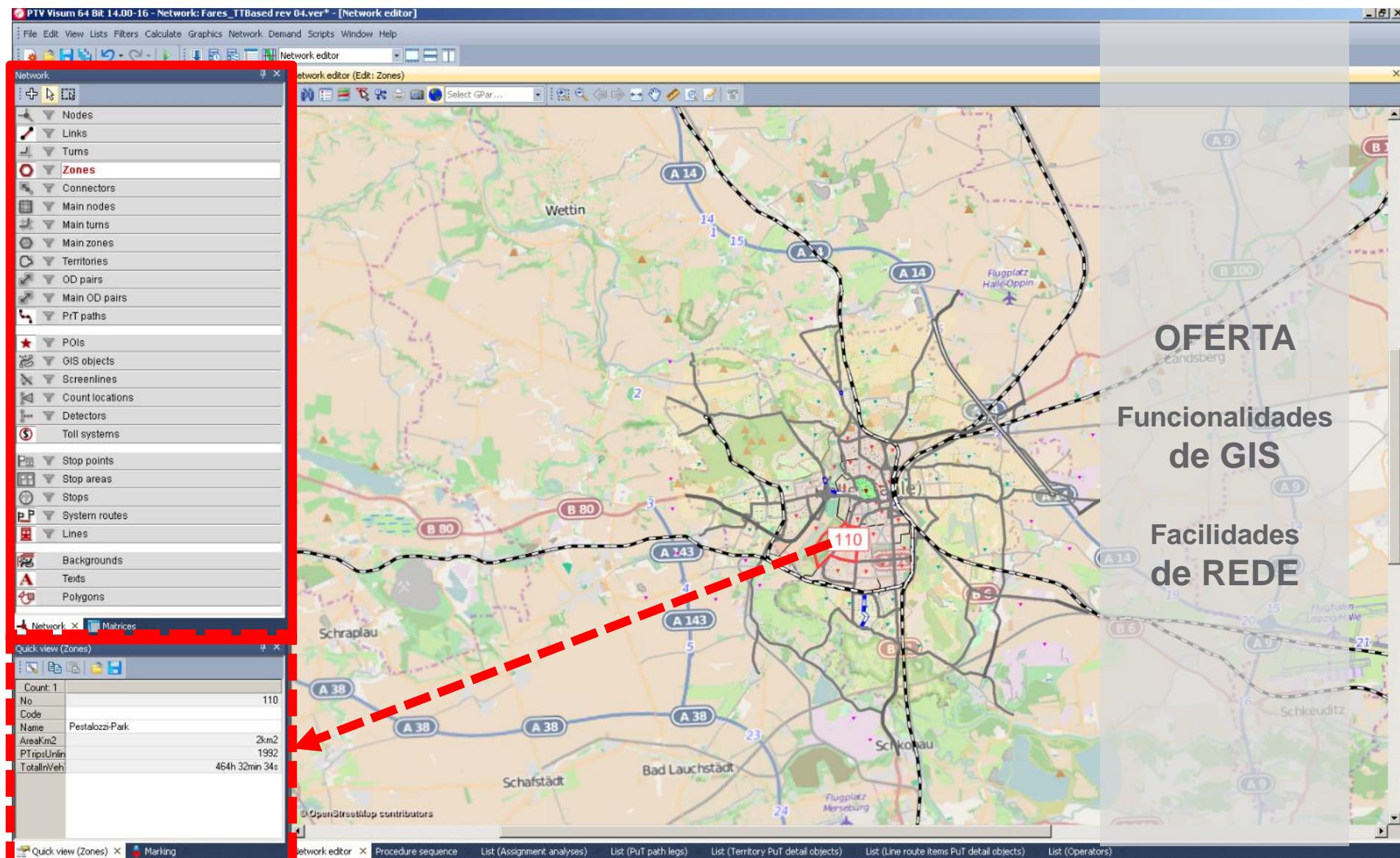
MODELOS DE SIMULAÇÃO PTV VISUM



MODELOS DE SIMULAÇÃO INTEGRADOS

*Algumas funcionalidades gerais do
PTV VISUM*

MODELOS DE SIMULAÇÃO PTV VISUM



MODELOS DE SIMULAÇÃO PTV VISUM

PTV Visum 64 Bit 14.00-16 - Network: Fares_TTBased rev 04.ver* - [Network editor]

File Edit View Lists Filters Calculate Graphics Network Demand Scripts Window Help

Network editor

Network

- Nodes
- Links
- Turns
- Zones
- Connectors
- Main nodes
- Main turns
- Main zones
- Territories
- OD pairs
- Main OD pairs
- PtT paths

- POIs
- GIS objects
- Screens
- Count locations
- Detectors
- Toll systems

- Stop points
- Stop areas
- Stops
- System routes
- Lines

- Backgrounds
- Texts
- Polygons

Network Matrices

Quick view (Lines)

Count: 1	
Name	B21
TSysCode	
NumLineRoutes	2
PTripsUnlinked(AP)	4840

Quick view (Lines) Marking

Network editor Matrix editor (Matrix '100 Car')

OFERTA

Funcionalidades de GIS

Facilidades de REDE

Lines

Lines Line routes

Name	In selection
B21	<input checked="" type="checkbox"/>
B22	<input checked="" type="checkbox"/>
B24	<input checked="" type="checkbox"/>
B25	<input checked="" type="checkbox"/>
B26	<input checked="" type="checkbox"/>
B27	<input checked="" type="checkbox"/>
B28	<input checked="" type="checkbox"/>

Only active ones 1 (42)

Initialize Autozoom Timetable

MODELOS DE SIMULAÇÃO PTV VISUM

The figure shows a screenshot of the PTV Visum software interface. The main window displays a map of a city area divided into various zones, with two specific zones highlighted in pink: '110' and '220'. The word 'DEMANDA' is displayed above the map, and 'OFERTA' is displayed below it. To the right, the text 'Funcionalidades de GIS' and 'Facilidades de REDE' is visible. The bottom half of the screen shows a detailed 'Matrix editor (Matrix '100 Car')' table for a 90x90 grid. The table includes columns for Name, Sum, and various zone identifiers (110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, etc.). The table also includes rows for different zones and system routes. A red arrow points from the '110' zone on the map to the corresponding row in the matrix table.

MODELOS DE SIMULAÇÃO PTV VISUM

Demand
Strata

Geração

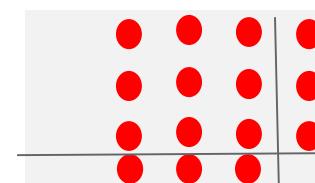
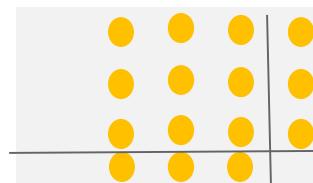
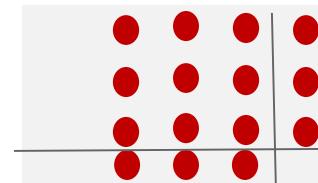
Distribuição

Divisão Modal

ALOCAÇÃO

Exemplo: Modelo 4 etapas,

existem outros modelos de demanda disponíveis, como o de atividades, cadeia de suprimentos, ...

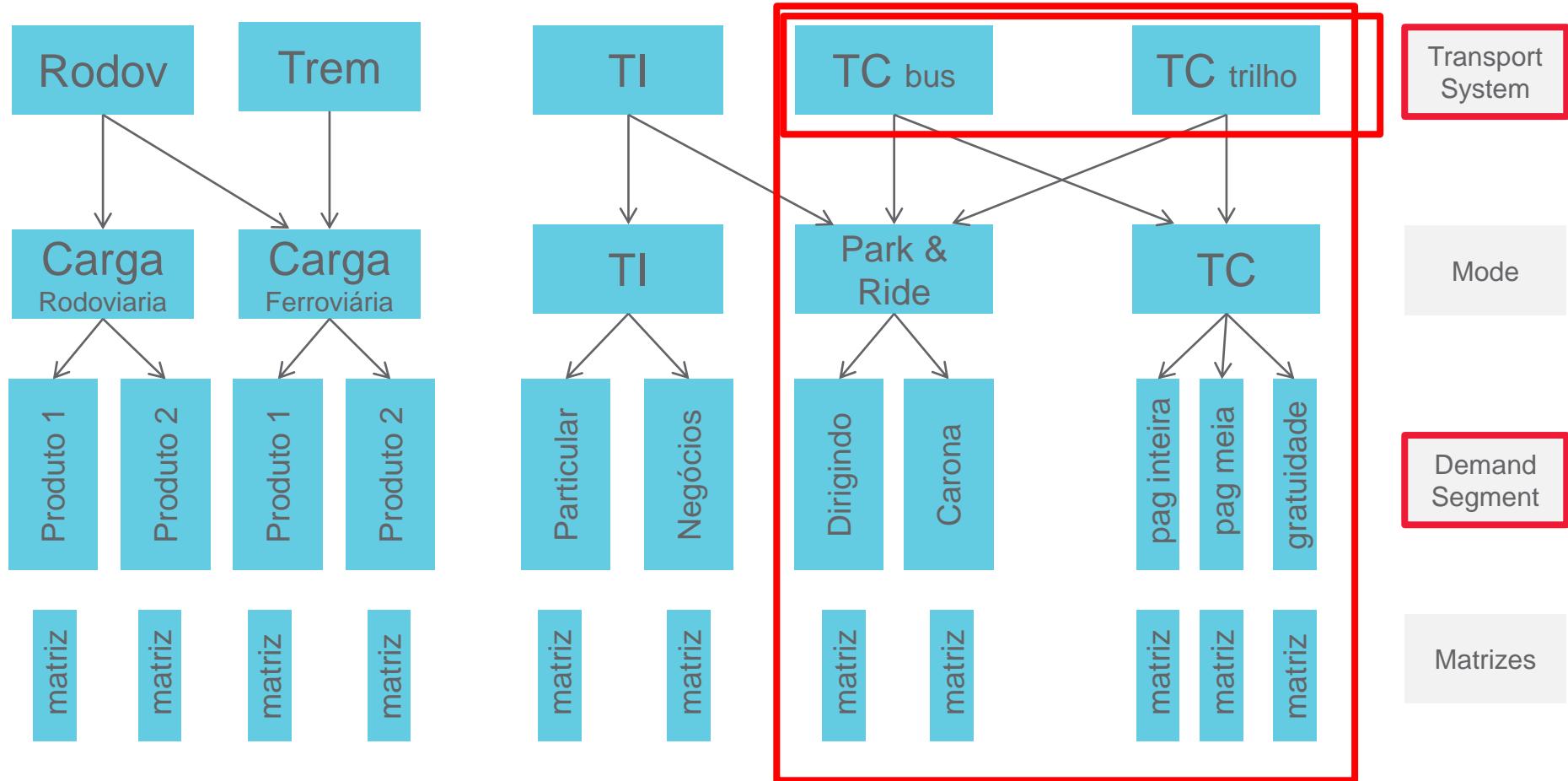


Demand
segment 1

Demand
segment 1

- Matrizes
- Séries temporais
- Grupos de usuários

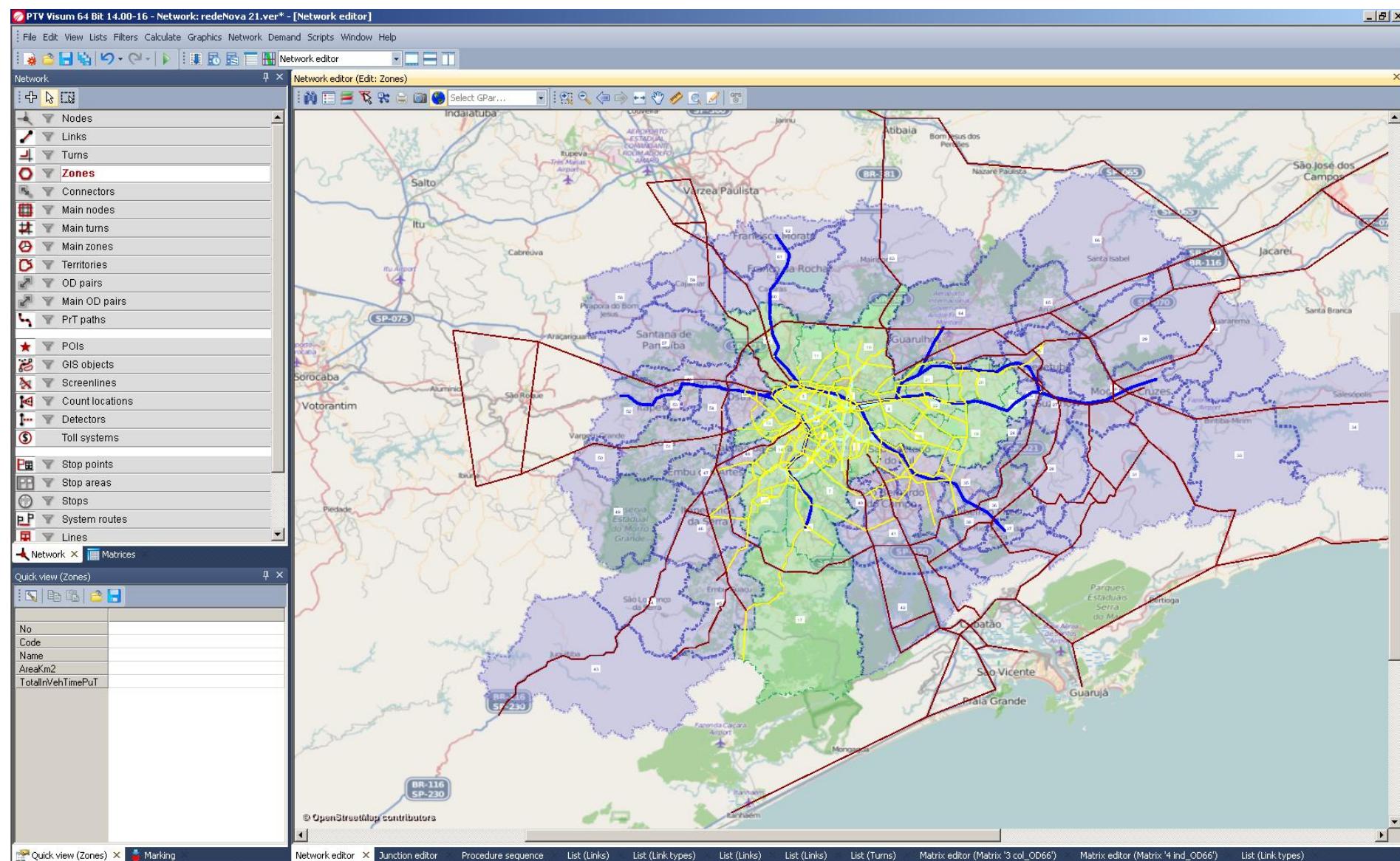
MODELOS DE SIMULAÇÃO PTV VISUM



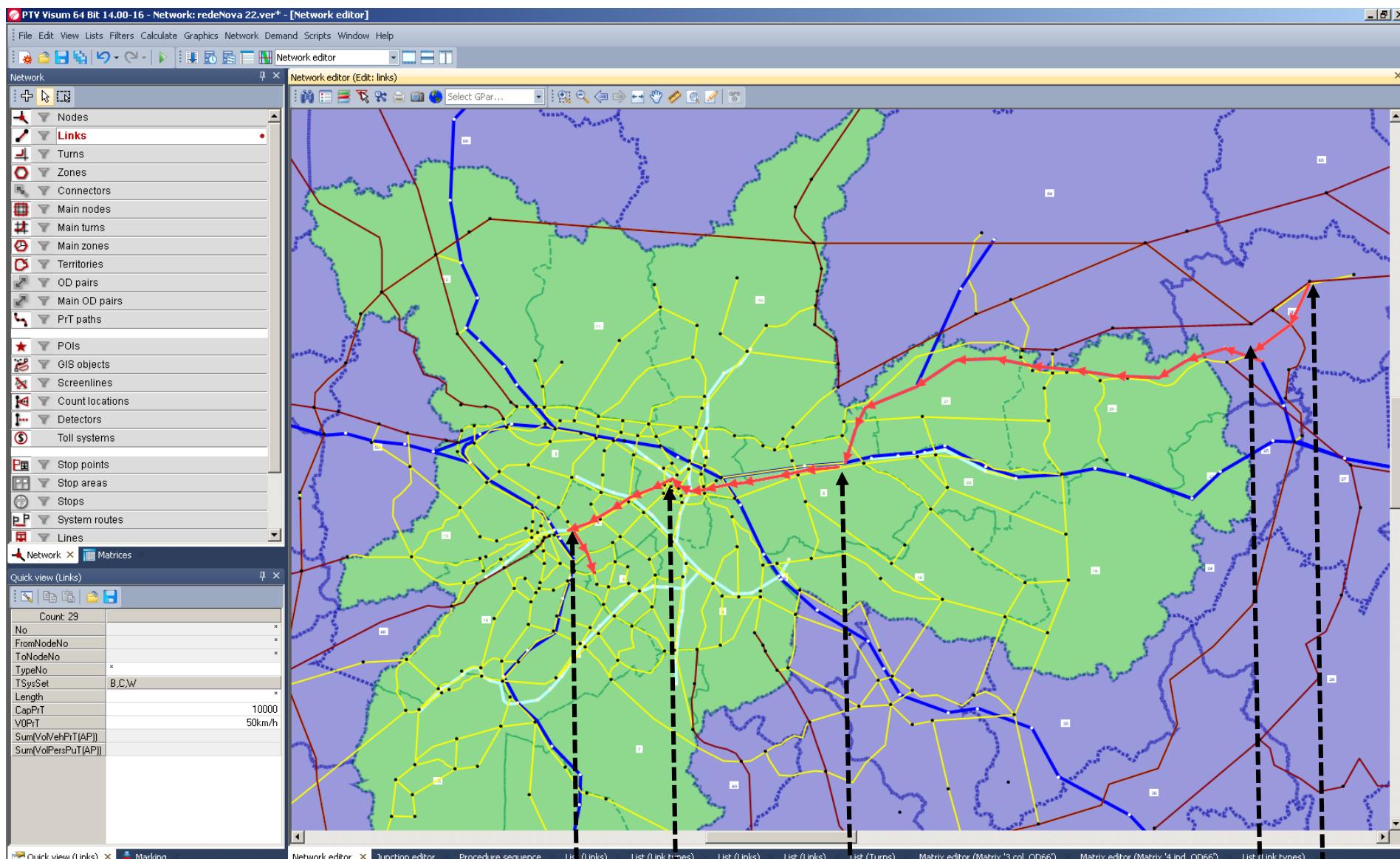
MODELOS DE SIMULAÇÃO INTEGRADOS

O caso específico da política de integração

MODELOS DE SIMULAÇÃO PTV VISUM



MODELOS DE SIMULAÇÃO PTV VISUM



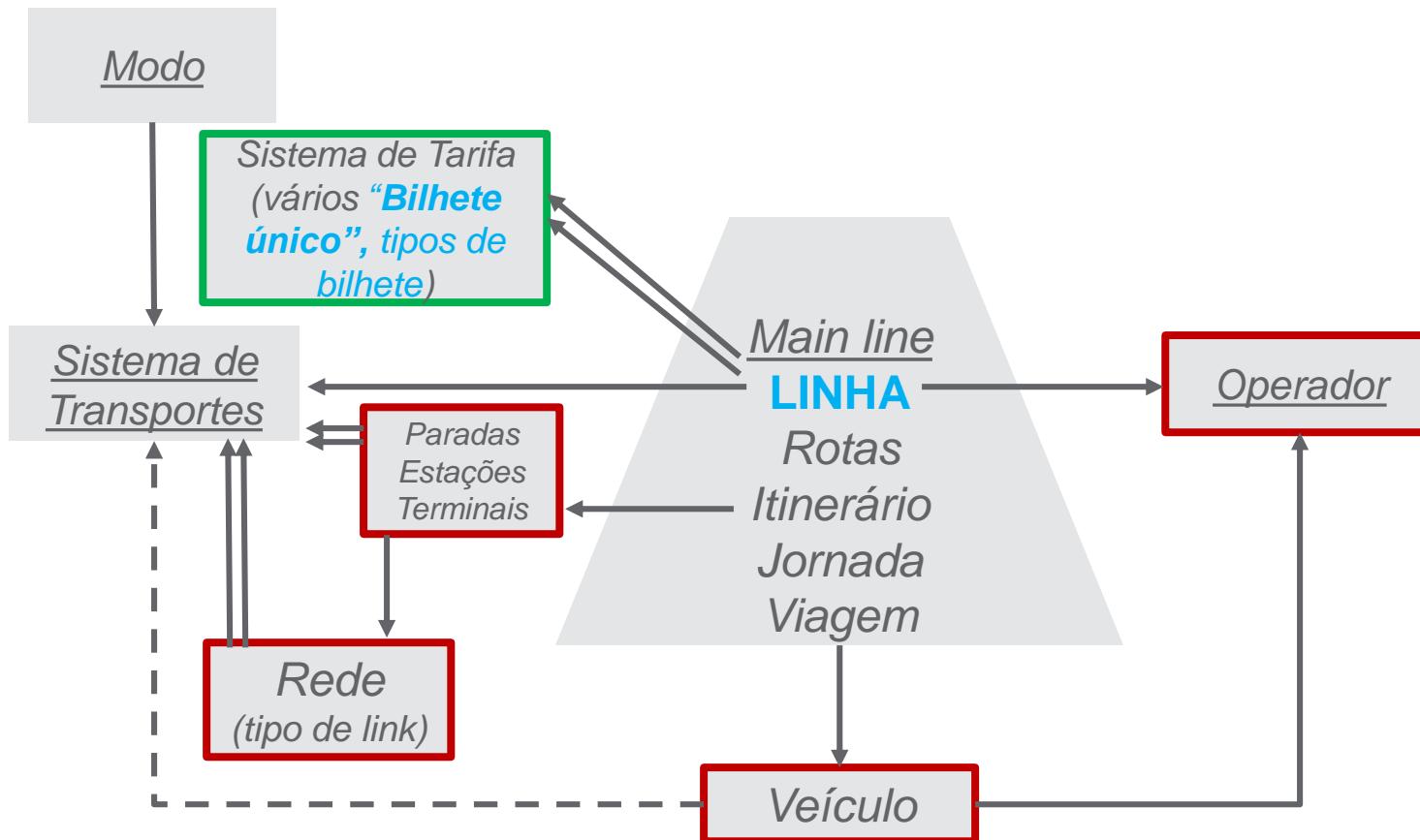
MODELOS DE SIMULAÇÃO INTEGRADOS

O modelo de informações do PTV VISUM

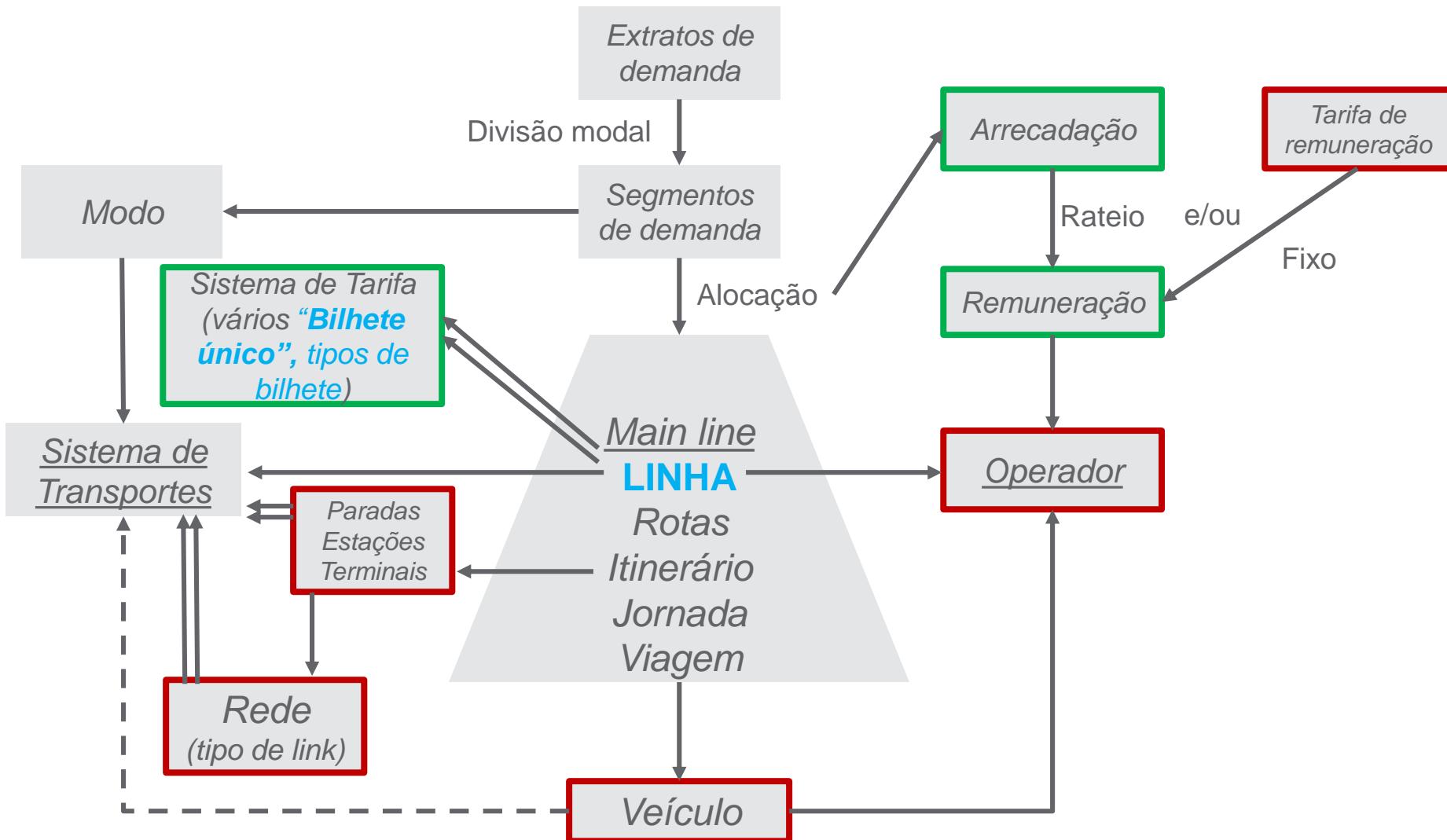
MODELOS DE SIMULAÇÃO PTV VISUM



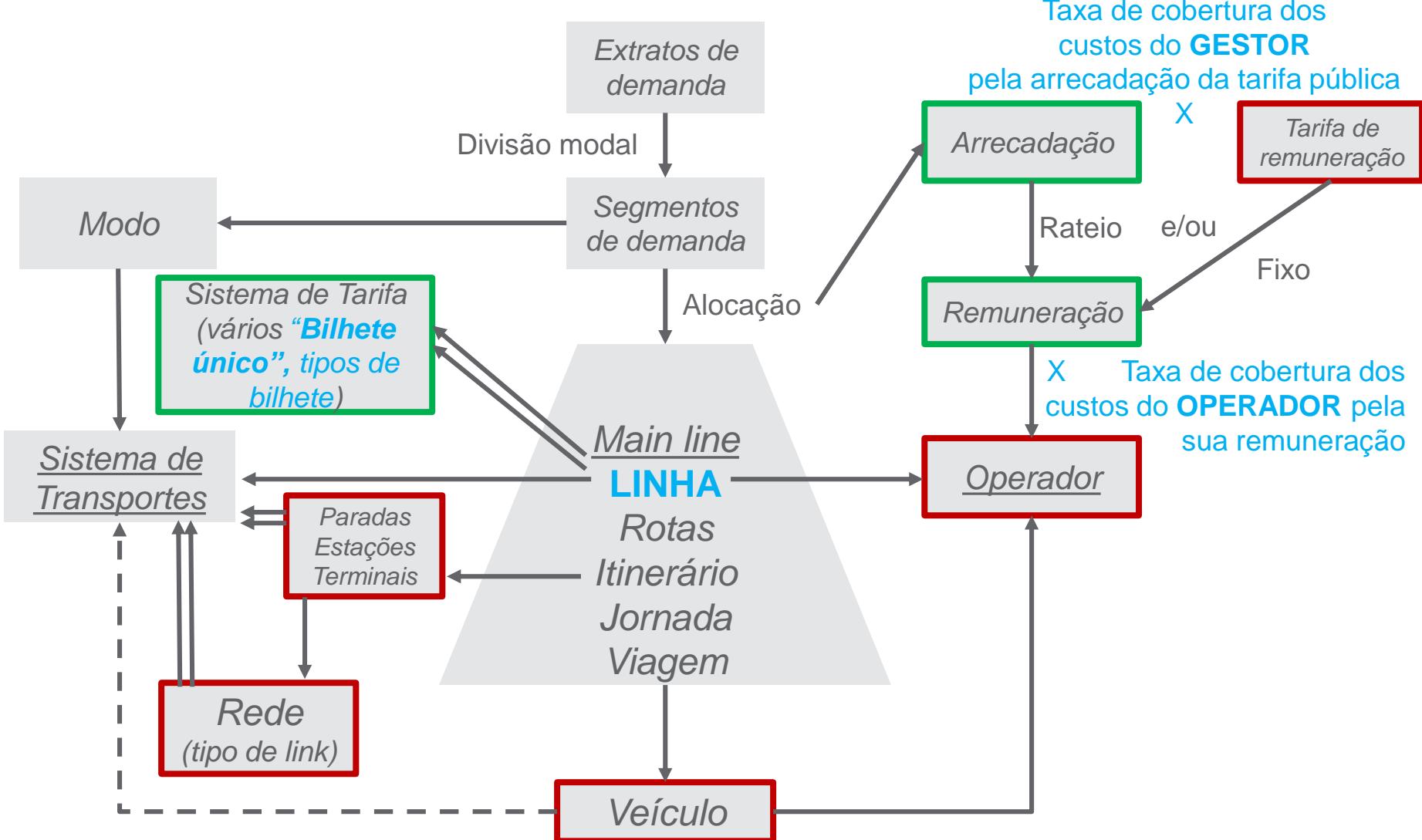
MODELOS DE SIMULAÇÃO PTV VISUM



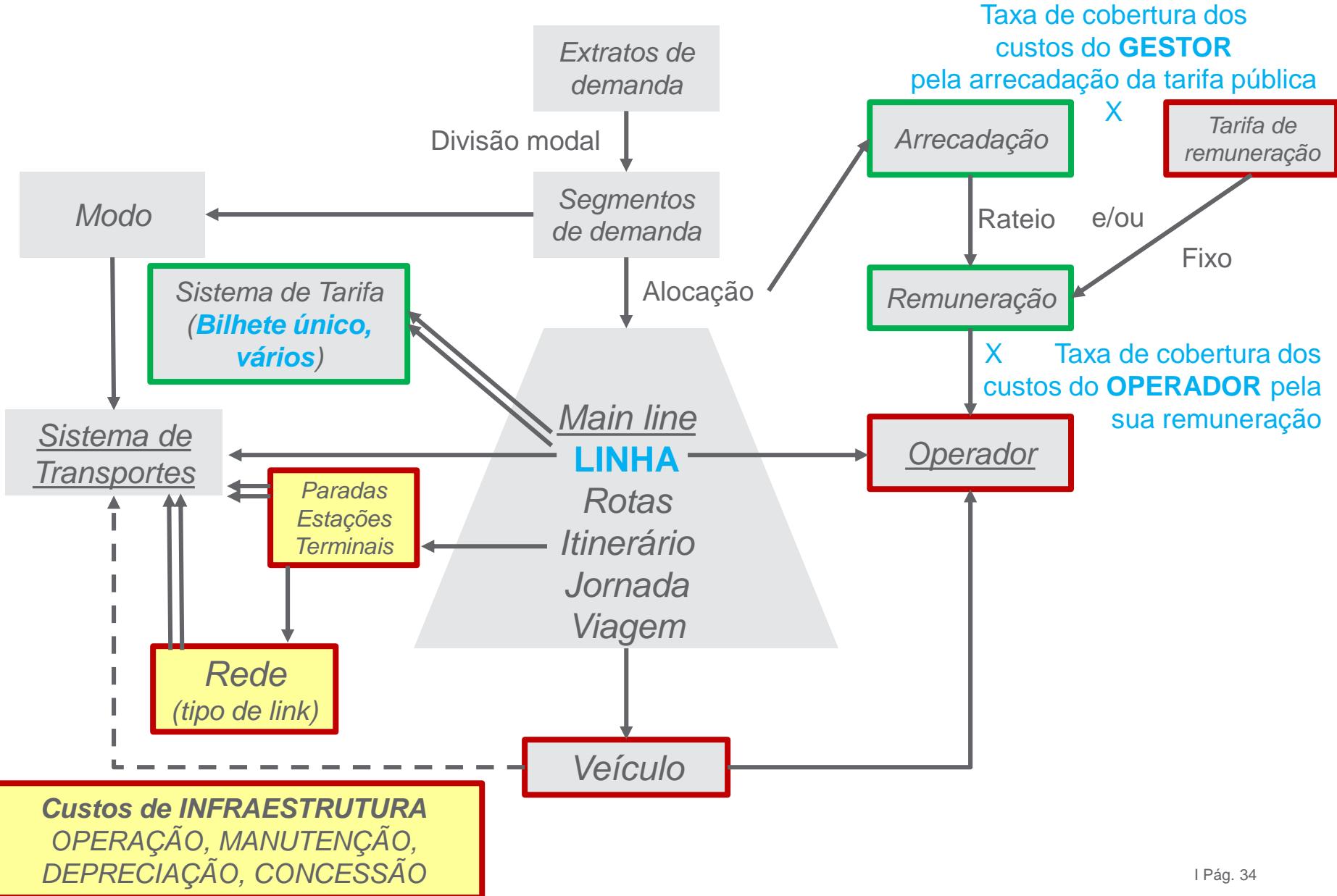
MODELOS DE SIMULAÇÃO PTV VISUM



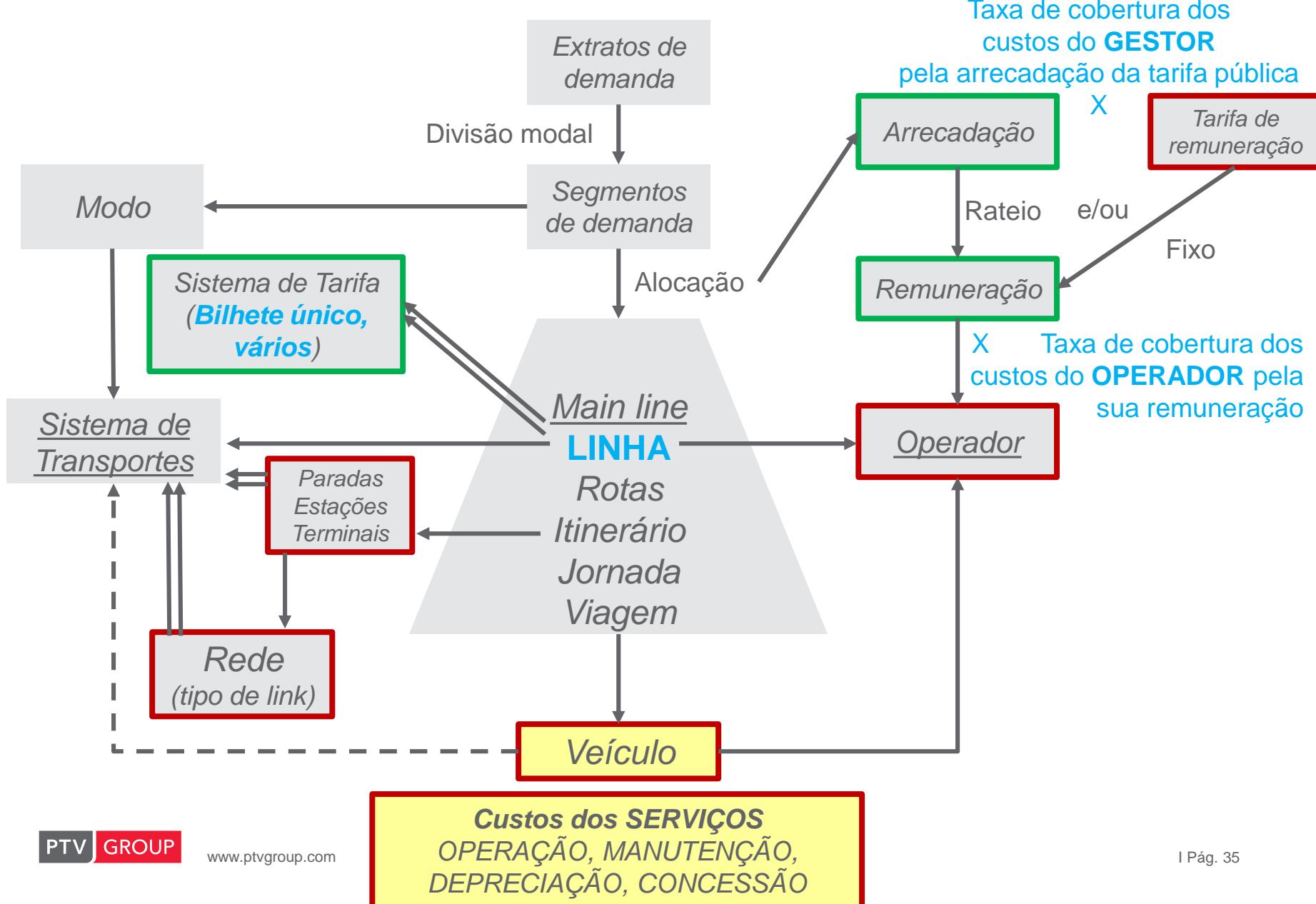
MODELOS DE SIMULAÇÃO PTV VISUM



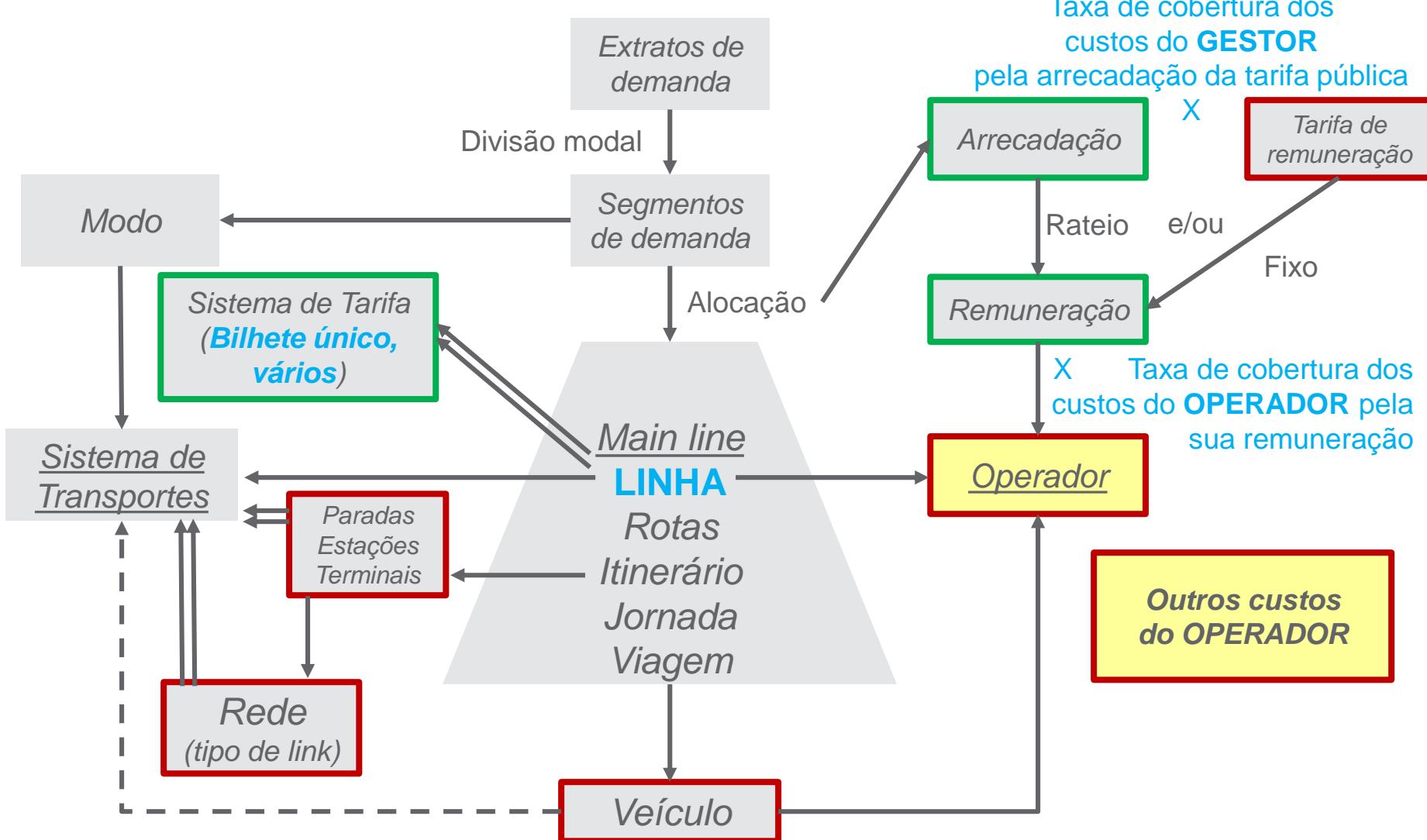
MODELOS DE SIMULAÇÃO PTV VISUM



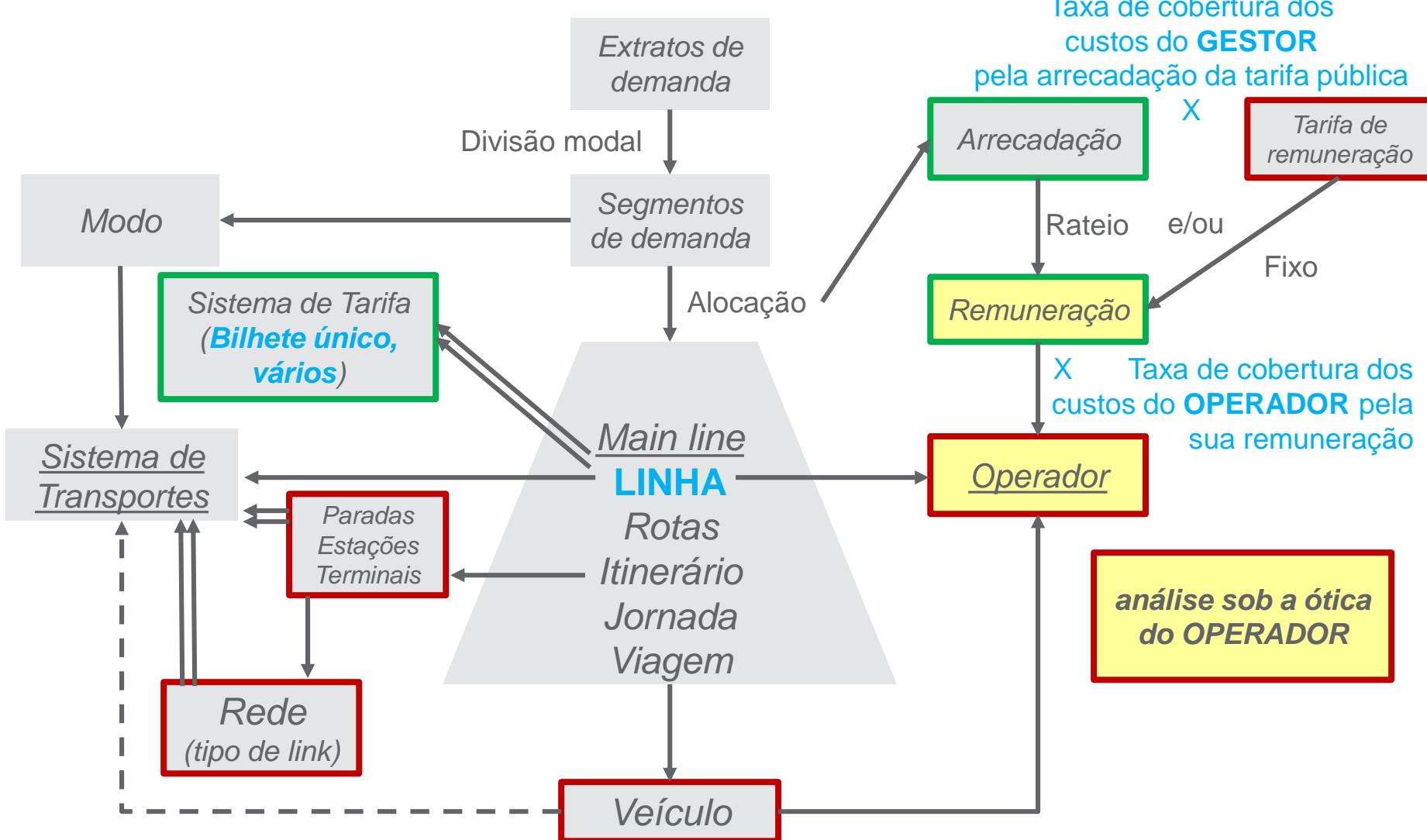
MODELOS DE SIMULAÇÃO PTV VISUM



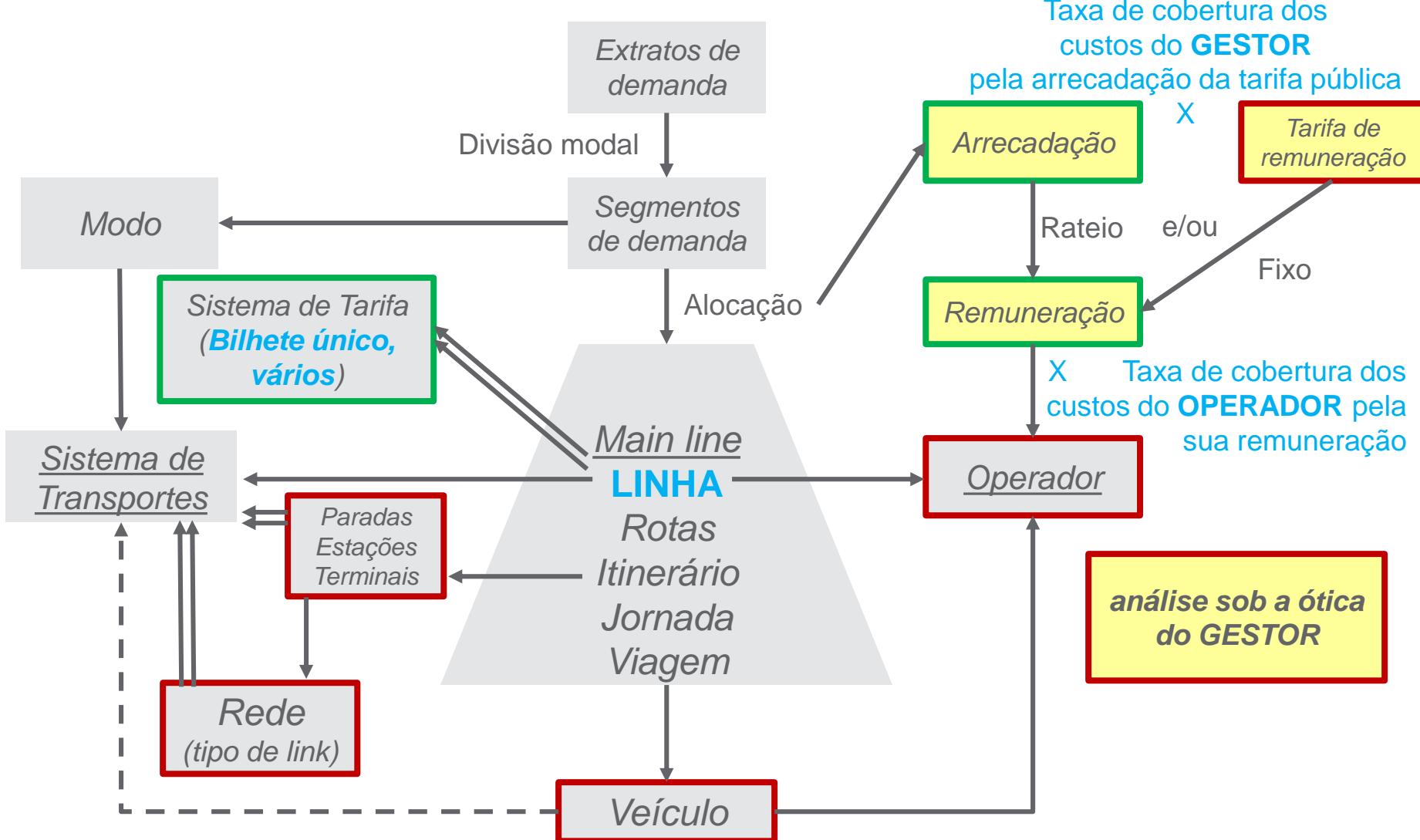
MODELOS DE SIMULAÇÃO PTV VISUM



MODELOS DE SIMULAÇÃO PTV VISUM



MODELOS DE SIMULAÇÃO PTV VISUM

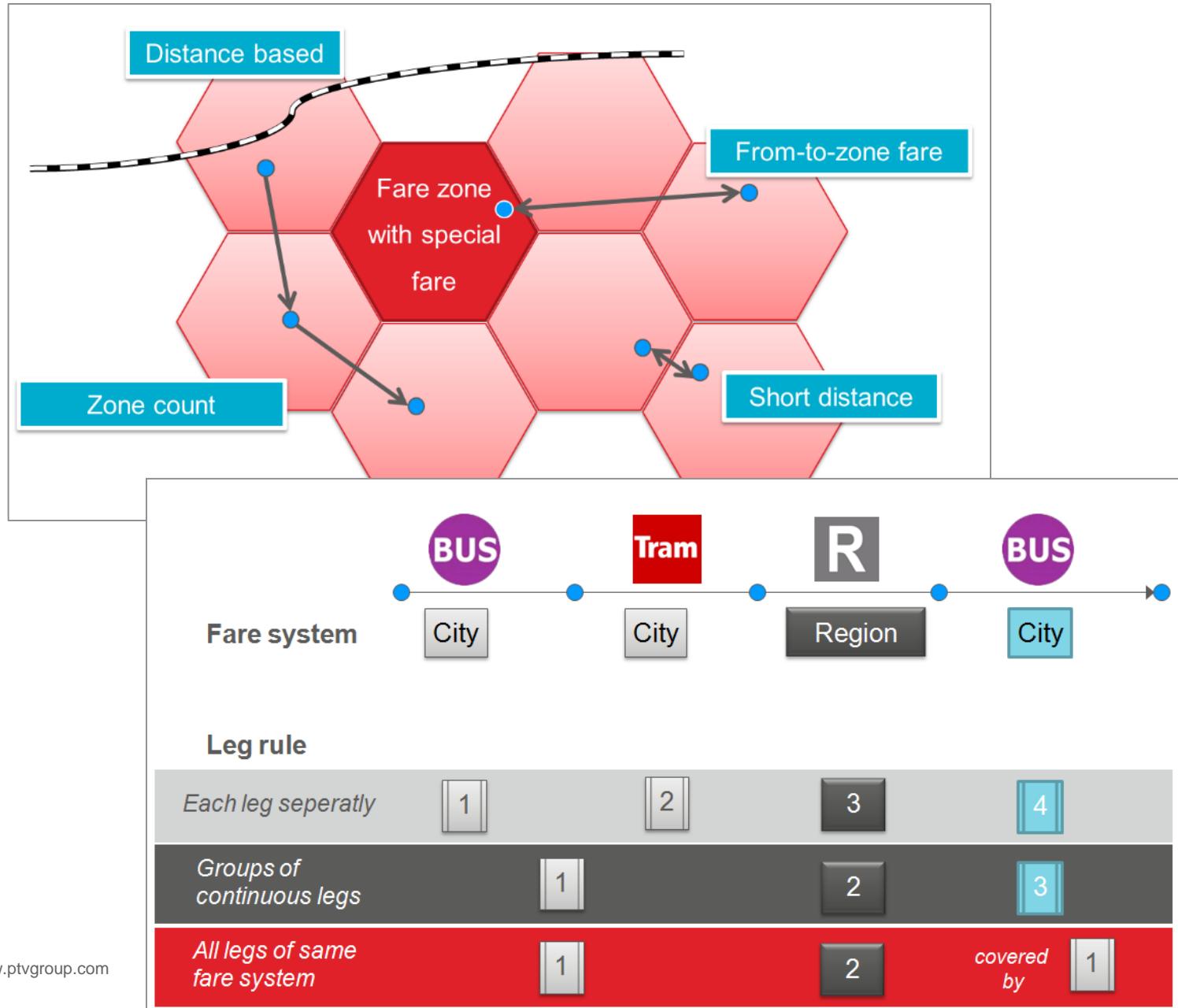


MODELOS DE SIMULAÇÃO INTEGRADOS

*Exemplo de detalhes para a representação
da política tarifária*

MODELOS DE SIMULAÇÃO PTV VISUM

Sistema de Tarifa
(vários “**Bilhete único**”, tipos de bilhete)



MODELOS DE SIMULAÇÃO INTEGRADOS

*Exemplo de relatório de resultados
compatível com a análise aqui proposta*

MODELOS DE SIMULAÇÃO INTEGRADOS

CAMINHO

The screenshot shows a PTV Visum interface with a map of a road network. The map features several colored zones (pink, green, blue) and a highlighted path in magenta. A yellow box with the text "Caminho" is overlaid on the map, pointing to a specific segment of the path. The interface includes a toolbar, a legend on the left, and a detailed table at the bottom titled "List (PuT path legs)".

List (PuT path legs)

Code	OrigZoneNc	DestZoneNc	PathIndex	PathLegIndex	ODTrips	FromStopPointN	ToStopPointN	TimeProfileKeyString	Time	WaitTime	Dist	TSysCode	Fare	Revenue	FareSystemName	
5006	9860	315169	10058	1	0.065	115	112001		27min 46s	0h 3.304km			2.20	4.00		
477		10	290	12			115	112001		4min 46s	0h 0.184km					
478				2			115	112001	T7 01 i 01	10min	0h 2.291km	BND	2.20	4.00	Bus, Tram, LRT, Regional Rail	
479				3			112001			13min	0h 0.829km					
480																
2481		10	290	13	0.172	18	66	18	21min 46s	0h 2.815km			3.00	4.00		
2482							18	66	T6 01 v 01	12min	0h 2.162km	BND	3.00	4.00	Bus, Tram, LRT, Regional Rail	
2483							2			7min	0h 0.469km					
2484							3	66	Destination connector	13min	0h 0.829km					
2485								115	112001		27min 46s	0h 3.304km		2.20	4.00	
2486							1	115	Origin connector	4min 46s	0h 0.184km					
2487							2	115	112001	T7 04 i 04	10min	0h 2.291km	BND	2.20	4.00	Bus, Tram, LRT, Regional Rail
2488							3	112001		13min	0h 0.829km					
2489		10	290	14	0.062	115	112001			22min 15s	1min 2.731km					
2490							1	9	Origin connector	5min 15s	0h 0.345km					
2491							2	9	156604565	B26 01 i 01	1min	0h 1.101km	BUS	0.75	2.00	Bus, Tram, LRT - short trip
2492							3	156604565	156604565	Transfer	0h	0h 0.000km				
2493							4	156604565	3661	B26 01 i 01	1min	0h 0.452km	BUS	0.75	2.00	Bus, Tram, LRT - short trip
2494							5	3661		14min	0h 0.829km					
2495		10	290	15	0.035	9	3661	9	Origin connector	5min 15s	0h 0.345km					
2496							2	9	156604565	B26 01 i 01	1min	0h 1.101km	BUS	0.75	2.00	Bus, Tram, LRT - short trip
2497							3	156604565	156604565	Transfer	0h	0h 0.000km				
2498							4	156604565	3661	B26 01 i 01	1min	0h 0.452km	BUS	0.75	2.00	Bus, Tram, LRT - short trip
2499							5	3661		14min	0h 0.829km					
2500		10	290	16	0.172	18	66	18	21min 46s	0h 2.815km			3.00	4.00		
2501							1	18	Origin connector	2min 46s	0h 0.184km					
2502							2	18	156604565	B26 01 v 01	12min	0h 2.162km	RND	3.00	4.00	Bus, Tram, LRT, Regional Rail

MODELOS DE SIMULAÇÃO INTEGRADOS

PTV Visum 64 Bit 14.00-16 - Network: Fares_TTBased rev 04.ver* - [List (PuT path legs)]

File Edit View Lists Filters Calculate Graphics Network Demand Scripts Window Help List (PuT path legs)

Network editor (Edit: Zones)

Nodes
Links
Turns
Zones
Connectors
Main nodes
Main turns
Main zones
Territories
OD pairs
Main OD pairs
PrT paths
POIs
GIS objects
Screenlines
Count locations
Detectors
Toll systems
Stop points
Stop areas
Stops
System routes
Lines
Backgrounds
Texts
Polygons

Network Matrices

Quick view (Zones)

No
Code
Name
AreaKm2
PTripsUnlinkedPuT_DSeg(dTC)
TotalInVehTimePuT

Quick view (Zones) Marking

CAMINHO

origem destino caminho alternativo trecho

290

Sistema / operador gasto do usuário repasse ao operador

List (PuT path legs)

DSeg

Filter for path legs

Only select active profiles

Origin zone filter 10

Only PuT path legs Format Standard

Count	OrigZoneNc	DestZoneNc	PathIndex	PathLegIndex	ODTrips	FromStopPointN	ToStopPointN	TimeProfileKeyString	Time	WaitTime	Dist	TSysCode	Fare	Revenue	FareSystemName
5006	9860	315169	10058		11091 1100.811	16201284299	16783330885		lh 47min 9s	1 min 54s	38.017km		5867.00	7888.00	
	477		10	290	12		115	112001		27min 46s	0h 3.304km		2.20	4.00	
	478				1			115 Origin connector	4min 46s	0h 0.184km					
	2479				2		115	112001 T7 01 i 01	10min	0h 2.291km	BND	2.20	4.00	Bus, Tram, LRT, Regional Rail	
	480				3		112001	Destination connector	13min	0h 0.829km					
	2481		10	290	13		18	66	21min 46s	0h 2.815km		3.00	4.00		
	2482				1			18 Origin connector	2min 46s	0h 0.184km					
	2483				2		18	66 T6 01 v 01	12min	0h 2.162km	BND	3.00	4.00	Bus, Tram, LRT, Regional Rail	
	2484				3		66	Destination connector	7min	0h 0.469km					
	2485		10	290	14			115	27min 46s	0h 3.304km		2.20	4.00		
	2486				1			115 Origin connector	4min 46s	0h 0.186km					
	2487				2		115	112001 T7 04 i 04	10min	0h 2.291km	BND	2.20	4.00	Bus, Tram, LRT, Regional Rail	
	2488				3		112001	Destination connector	13min	0h 0.829km					
	2489		10	290	15			3661	22min 15s	1min 2.731km		1.50	4.00		
	2490				1			9 Origin connector	5min 15s	0h 0.345km					
	2491				2		9	156604565 B26 01 i 01	1min	0h 1.101km	BUS	0.75	2.00	Bus, Tram, LRT - short trip	
	2492				3		156604565	156604565 Transfer	0h	0h 0.000km					
	2493				4		156604565	3661 B26 01 i 01	1min	0h 0.452km	BUS	0.75	2.00	Bus, Tram, LRT - short trip	
	2494				5		3661	Destination connector	14min	0h 0.829km					
	2495		10	290	16			66	21min 46s	0h 2.815km		3.00	4.00		
	2496				1			18 Origin connector	2min 46s	0h 0.184km					
	2497				2		18 T6 01 v 01	12min	0h 2.162km	RND	3.00	4.00	Bus, Tram, LRT, Regional Rail		

MODELOS DE SIMULAÇÃO INTEGRADOS

PTV Visum 64 Bit 14.00-16 - Network: Fares_TTBased rev 04.ver* - [List (PuT path legs)]

File Edit View Lists Filters Calculate Graphics Network Demand Scripts Window Help List (PuT path legs)

Network editor (Edit: Zones)

Nodes
Links
Turns
Zones
Connectors
Main nodes
Main turns
Main zones
Territories
OD pairs
Main OD pairs
PrT paths
POIs
GIS objects
Screenlines
Count locations
Detectors
Toll systems
Stop points
Stop areas
Stops
System routes
Lines
Backgrounds
Texts
Polygons

Network Matrices

Quick view (Zones)

No
Code
Name
AreaKm2
PTripsUnlinkedPuT_DSeg(dTC)
TotalInVehTimePuT

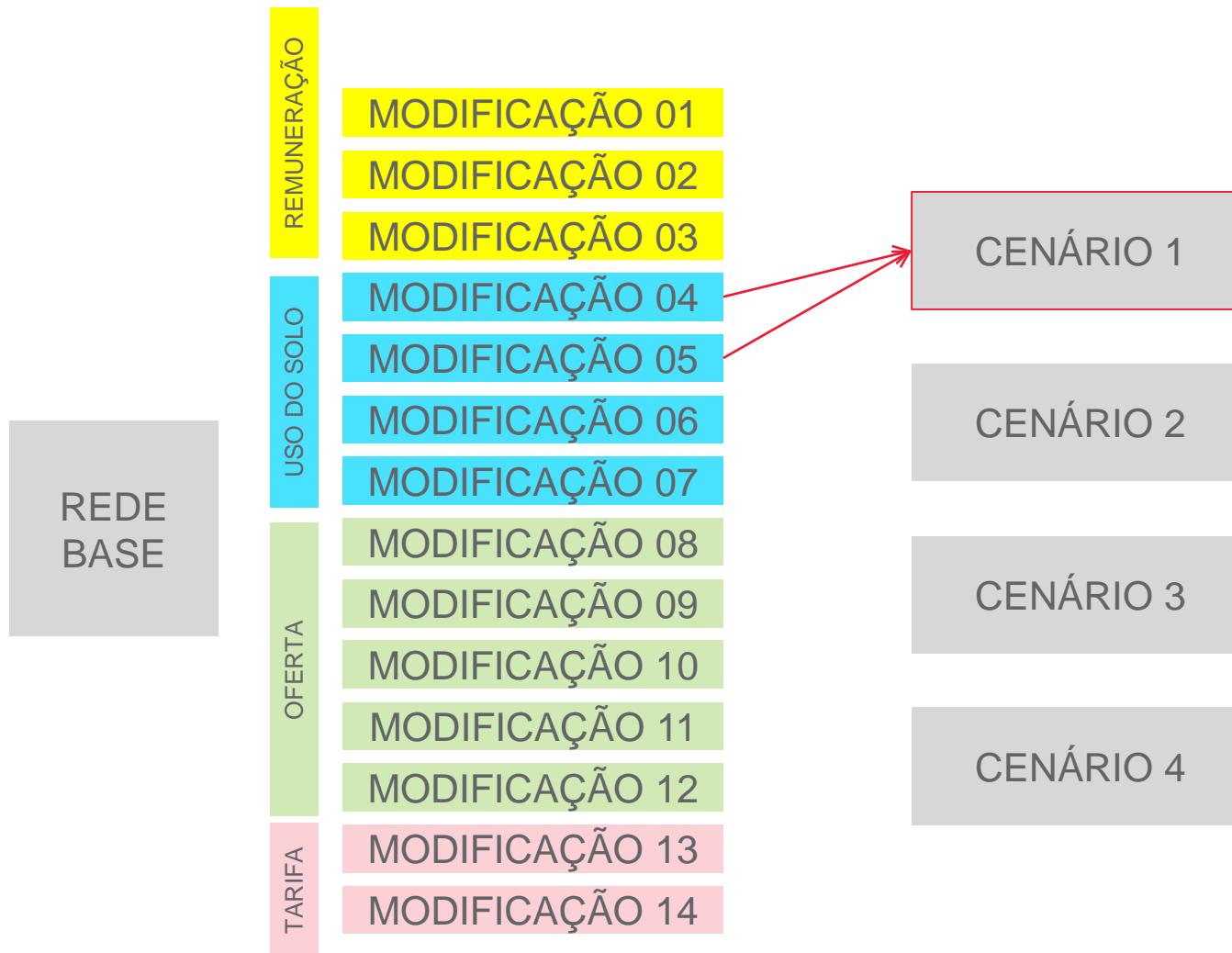
Quick view (Zones) Marking

Count	OrigZoneNc	DestZoneNc	PathIndex	PathLegIndex	ODTrips	FromStopPointNc	ToStopPointNc	TimeProfileKeyString	Time	WaitTime	Dist	TSysCode	Fare	Revenue	FareSystemName
5006	9860	315169	10058		11091	1100.811	16201284299	16783330885					5867.00	7888.00	
	477			1		115	112001		27min 46s	0h 3.304km			2.20	4.00	
	478			2		115	112001	T7 01 i 01	4min 46s	0h 0.184km					
	479			3		112001		Destination connector	10min	0h 2.291km	BND		2.20	4.00	Bus, Tram, LRT, Regional Rail
	480									0h 0.829km					
	2481	10	290	13	0.172	18	66	21min 46s	0h 2.815km				3.00	4.00	
	2482			1		18	66	T6 01 v 01	2min 46s	0h 0.184km					
	2483			2		18	66	Destination connector	12min	0h 2.162km	BND		3.00	4.00	Bus, Tram, LRT, Regional Rail
	2484			3		66			7min	0h 0.469km					
	2485														
	2486			1		115	112001		27min 46s	0h 3.304km			2.20	4.00	
	2487			2		115	112001	T7 04 i 04	4min 46s	0h 0.184km					
	2488			3		112001		Destination connector	10min	0h 2.291km	BND		2.20	4.00	Bus, Tram, LRT, Regional Rail
	2489									13min	0h 0.829km				
	2490			1		9	3661		22min 15s	1min 2.731km			1.50	4.00	
	2491			2		9	3661	Origin connector	5min 15s	0h 0.345km					
	2492			3		9	156604565	B26 01 i 01	1min	0h 1.101km	BUS		0.75	2.00	Bus, Tram, LRT - short trip
	2493			4		156604565	156604565	Transfer	0h	0min 0.000km					
	2494			5		3661	B26 01 i 01		1min	0h 0.452km	BUS		0.75	2.00	Bus, Tram, LRT - short trip
	2495			10		18	66	Destination connector	14min	0h 0.829km					
	2496			1		18	66		21min 46s	0h 2.815km			3.00	4.00	
	2497			2		18	66	Origin connector	2min 46s	0h 0.184km					

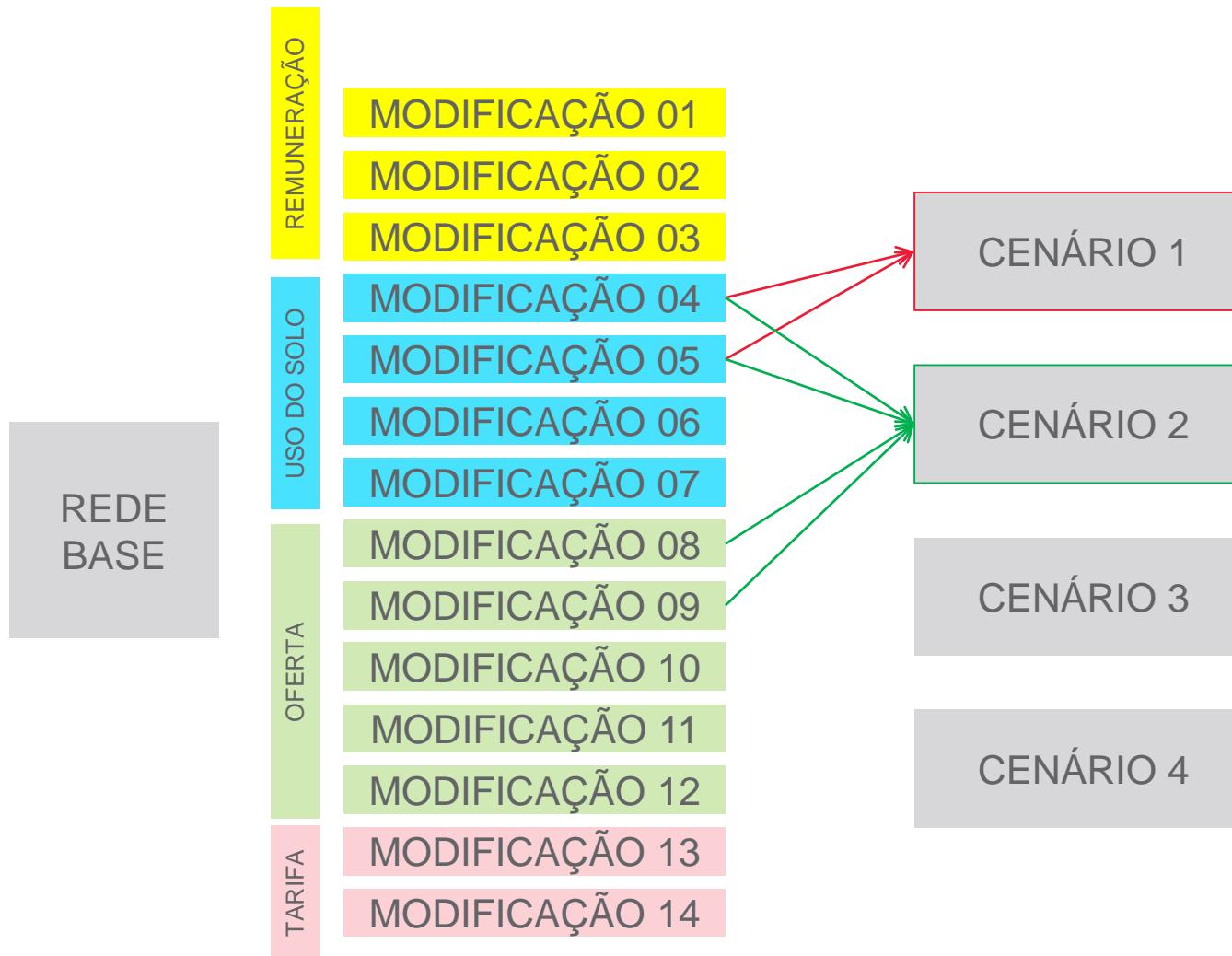
MODELOS DE SIMULAÇÃO INTEGRADOS

*O gerenciador de cenários
e exemplos de procedimentos*

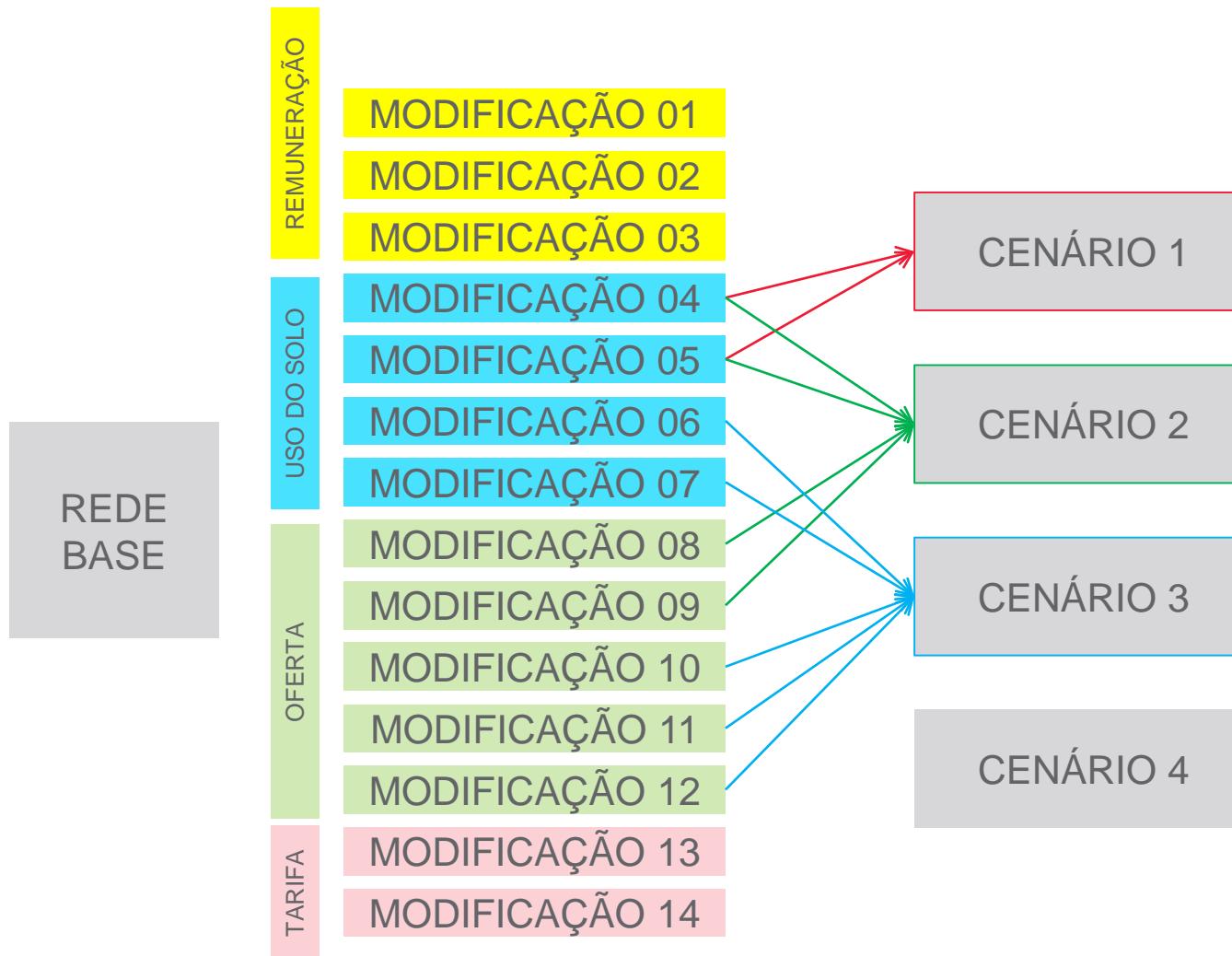
MODELOS DE SIMULAÇÃO INTEGRADOS



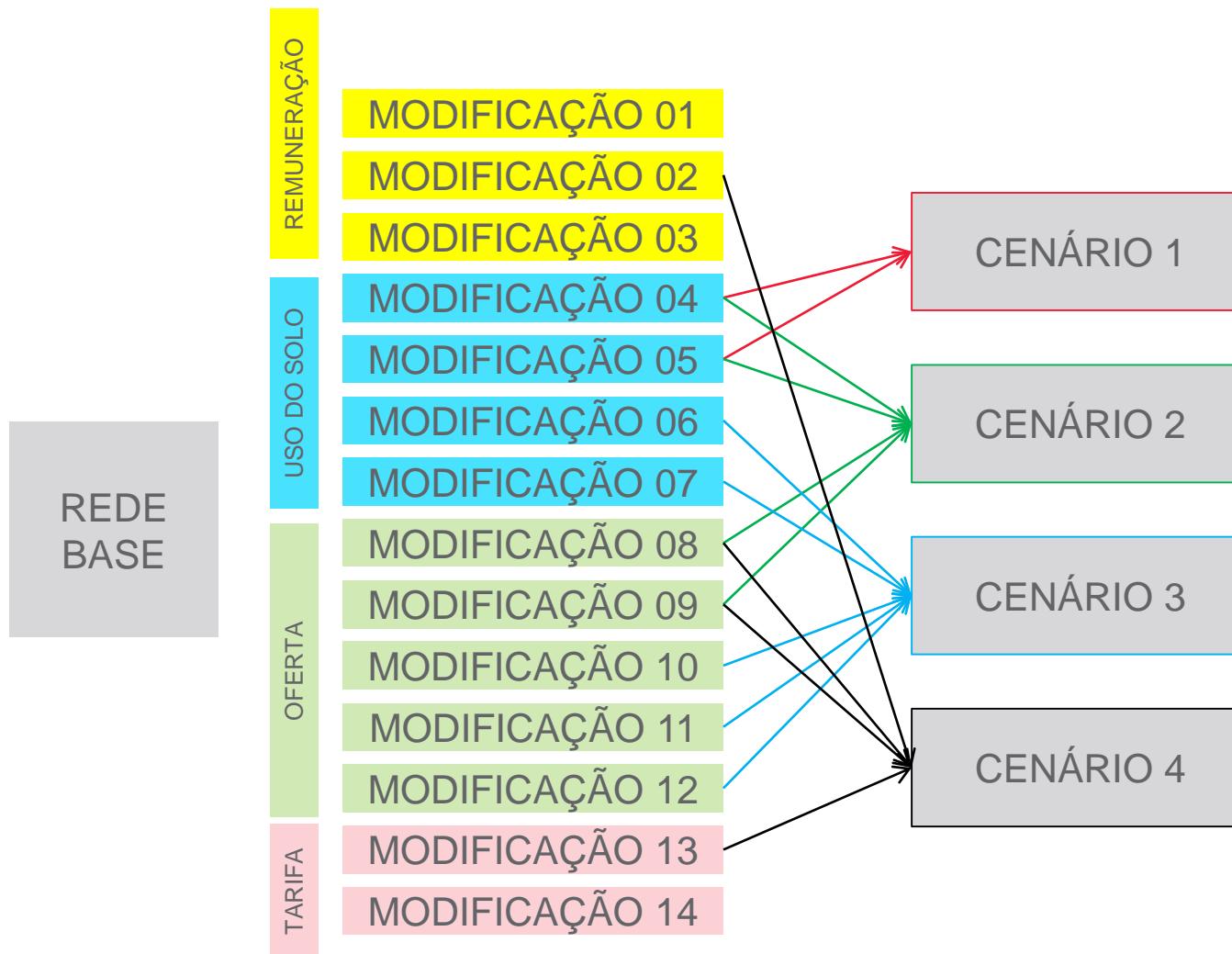
MODELOS DE SIMULAÇÃO INTEGRADOS



MODELOS DE SIMULAÇÃO INTEGRADOS



MODELOS DE SIMULAÇÃO INTEGRADOS



MODELOS DE SIMULAÇÃO INTEGRADOS

PTV Visum 64 Bit 14.00-16 Project: Halle_Project Base version - [Neteditor]

File Edit View Lists Filters Calculate Graphics Network Demand Scripts

Network

Nodes

Links

TURNS

Zones

Connectors

Main nodes

Main turns

Main zones

Territory

OD pairs

Main OI

PrT pat

POIs

GIS obj

Screen

Count

Detect

Toll sys

Stop pc

Stop ar

Stops

System

Lines

Network

Quick view (Zones)

Close project

Number do cenário

Descrição

Modificações consideradas /cenário

Indicador 1

Indicador 2, ...

Legend

Links

Type number

- Blue line: <= 20
- Red line: <= 30
- Dark red line: <= 60
- Yellow line: <= 70
- Light yellow line: <= 88
- Black line: <= 92
- Dashed blue line: <= 93
- Dashed orange line: <= 94

0 400 800 m

Count: 6

Number	Code	Description	Procedure parameter set	Modifications	Calculation state	Progress	Last calculation	V/C	Person-Km	Service-Km
1	DoMin	DoMinimum	2 AssignPrTPUT	...	Calculated	03/06/2014 22:51:49	120	929272.061km	50418.012km	
2	Br	Bridge	2 AssignPrTPUT	1	Calculated	03/06/2014 22:51:49	117	929272.061km	50418.012km	
3	Dem2020	Demand 2020	2 AssignPrTPUT	2	Calculated	03/06/2014 22:52:35	132	929272.061km	50418.012km	
4	Br2020	Bridge2020	2 AssignPrTPUT	1,2	Calculated	03/06/2014 22:52:45	128	929272.061km	50418.012km	
5	BrRo	Bridge and Bus Route	2 AssignPrTPUT	4	Calculated	03/06/2014 22:53:28	117	945501.057km	52558.547km	
6	BrRoUp	Bridge and Bus Route and Road Upgrade	2 AssignPrTPUT	3,4	Calculated	03/06/2014 22:53:38	115	945501.057km	52558.547km	

Quick view (Zones) X

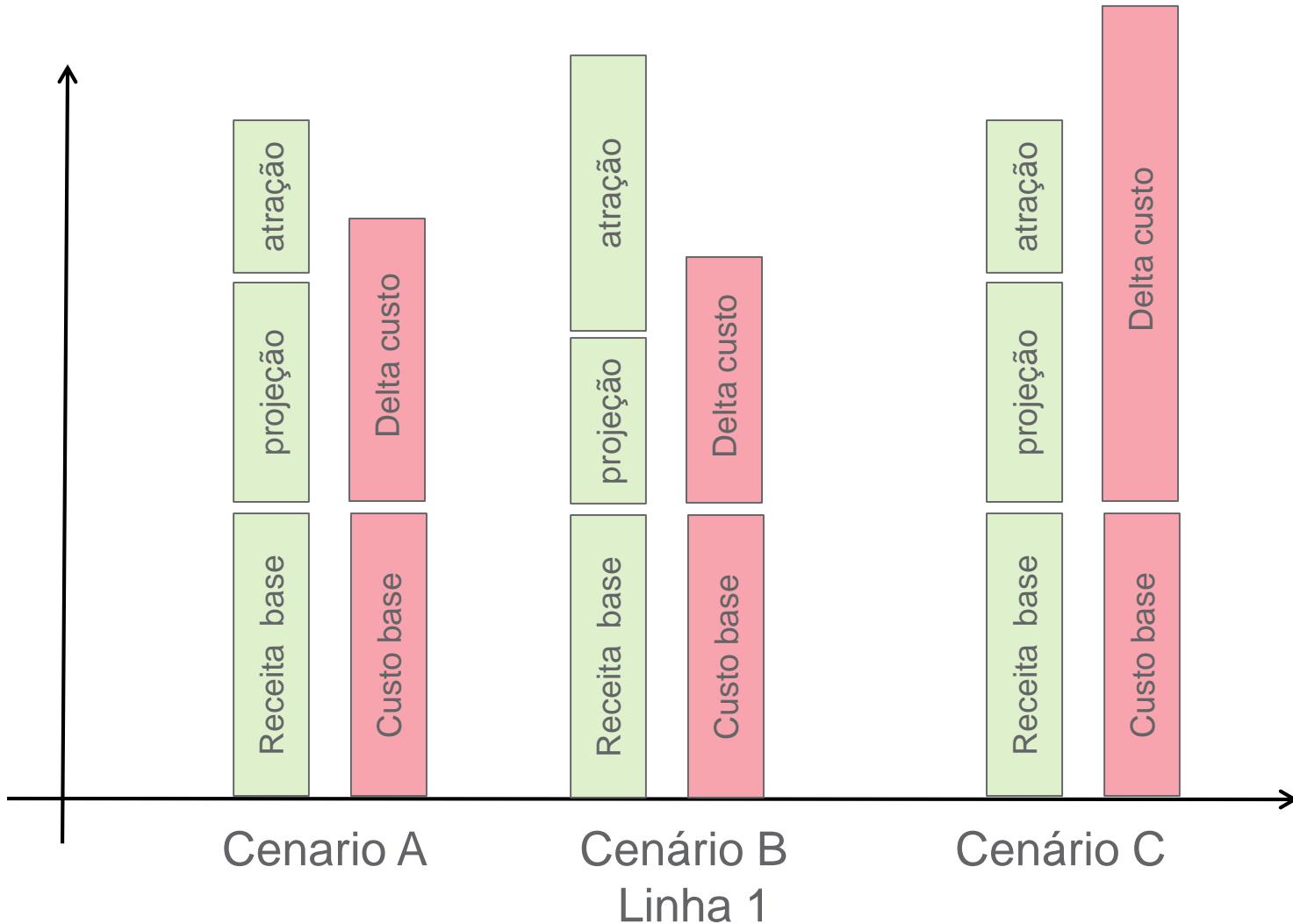
Marking

1:44689

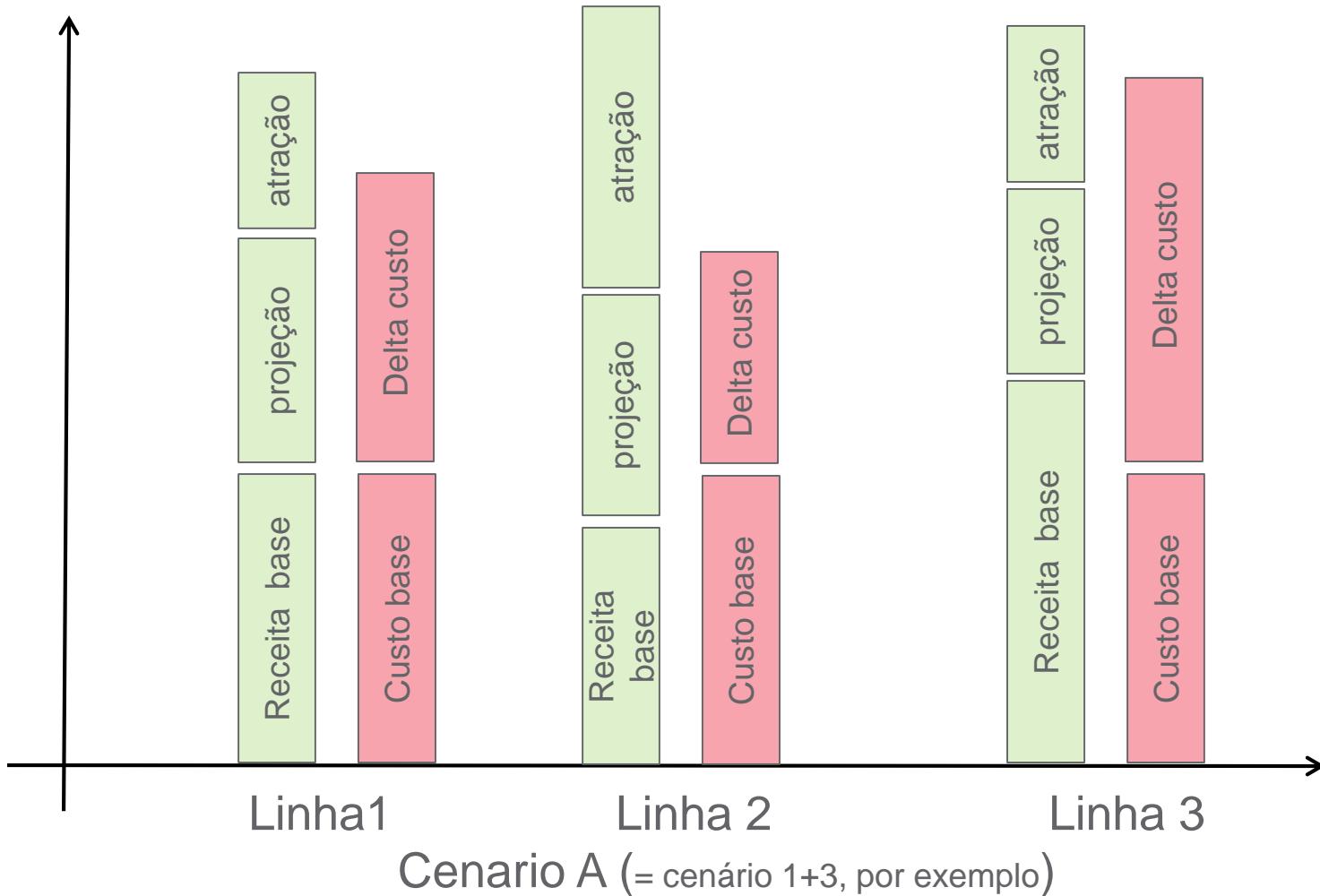
713727.7047

5706188.7859

MODELOS DE SIMULAÇÃO INTEGRADOS



MODELOS DE SIMULAÇÃO INTEGRADOS

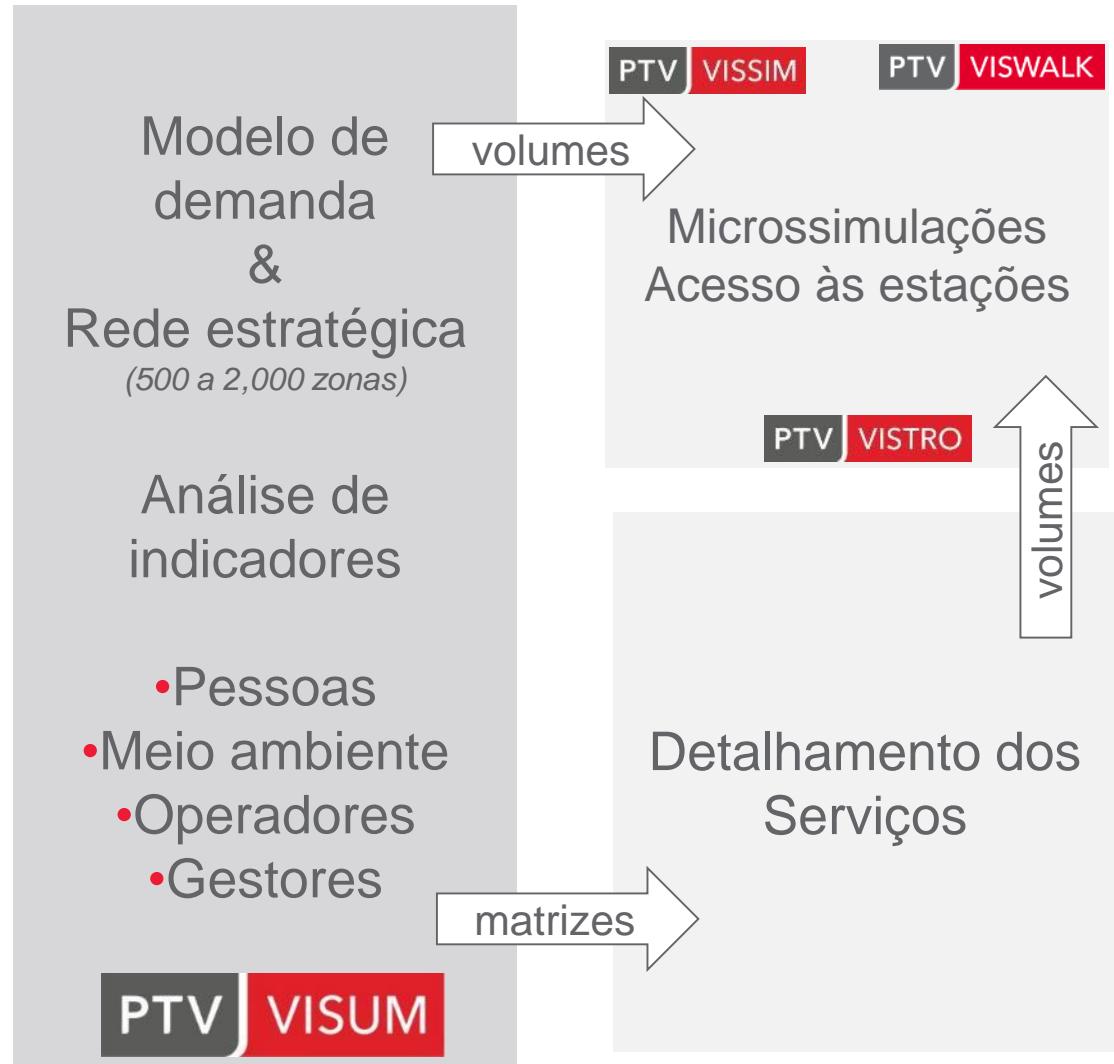


MODELOS DE SIMULAÇÃO INTEGRADOS

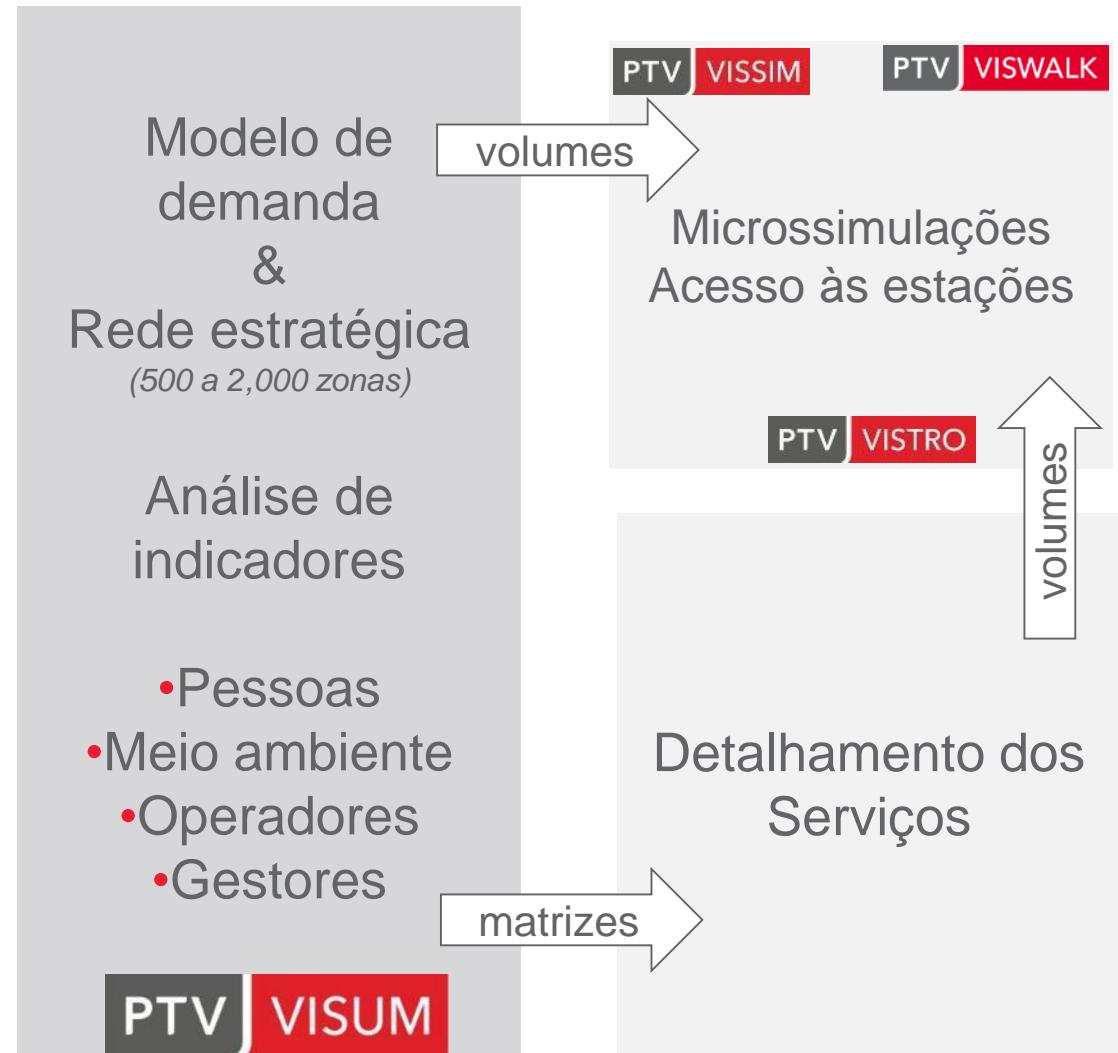
CONCLUSÕES E RECOMENDAÇÕES

Estrutura organizacional

MODELOS DE SIMULAÇÃO INTEGRADOS



MODELOS DE SIMULAÇÃO INTEGRADOS





**PLANEJAMOS e
OTIMIZAMOS,
TUDO o que MOVE
as PESSOAS e os
PRODUTOS,
ao redor do MUNDO**

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