The IDL to TTCN-3 Mapping

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The Motivation

- Testing of CORBA-based systems is required
- CORBA interfaces are specified via the Interface Definition Language (IDL)

➢ TTCN-3 based testing of CORBA-based systems requires a mapping of IDL to TTCN-3

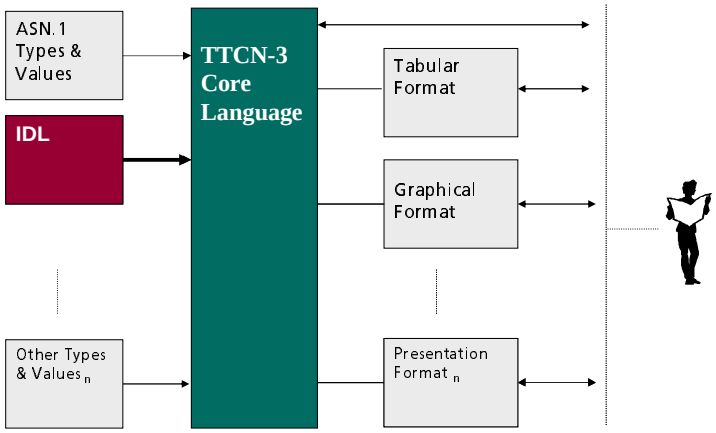
➢ The standardization of this mapping enables

  ➢ A unified approach how to use TTCN-3 for CORBA-based systems

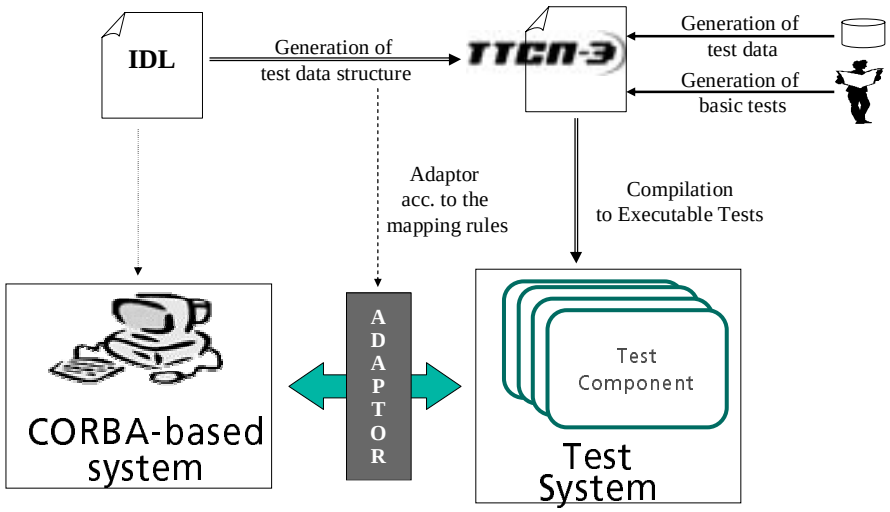
  ➢ Generic, reusable TRI/TCI adapters

  ➢ Lowers the efforts for users to apply TTCN-3

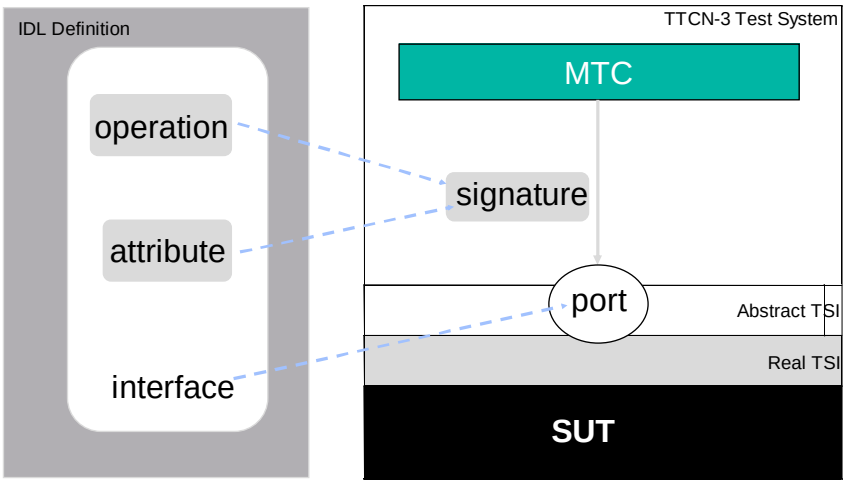
TTCN-3 and Software Testing



Overall Picture



Basic Concept of IDL to TTCN-3 Mapping



An Example

```
// IDL
module PolicyTest {
  exception WrongPolicy;
  enum objectstate {active, deactive, no_aom};

  :

  interface RequestPolicyTest
  {
    objectstate check_objectstate(in Object obj);
    Object create_object();
          raises {WrongPolicy};
  };
};
```

```
// TTCN-3
module PolicyTest {
 import all from CORBA;
 type record WrongPolicy {};
      {extension "CORBA v2.3, IDL: exception"};
 type enumerated  objectstate {active, deactive, non_aom}
      {extension "CORBA v2.3, IDL: exception"};
 :
 group RequestPolicyTest {
    signature check_objectState(in CORBA_Object svtProvider)
              return objectState;
    signature create_objectRef() return CORBA_Object
              exception (WrongPolicy); }
 type port CORBA_RequestPolicyTest procedure {
          out  create_objectRef,
               check_objectstate; }
 type component MTCType { port RequestPolicyTest MTCpco};
 type component TSIType { port RequestPolicyTest SYSpco };
 :
}
```

IDL and TTCN-3 Data Types

Basic		Constructed		Template		Other	
boolean	boolean	struct	record	sequence	record of	array	array
short	short	union	union	fixed	IDLfixed	native	address
long	long	enum	enumerated	wstring	universal charstring		
octet	octetstring			string	iso8859string		
char	iso8859char						
wchar	universal char						
float	IEEE754float						
double	IEEE754double						
any	anytype						

IDL Interface Mapping

IDL		*TTCN-3*
operation		signature
attribute		set-, get-signature
raise		signature with exception
context		signature parameter
interface	name space	group + name conventions
	interface instance	port
	interface type	address

Further Information

- Joint work between University Lübeck/Göttingen and Fraunhofer FOKUS, Berlin
- Straight forward mapping
  - Used for development of executable tests in the context of CORBA test suite development in the IST project CORVAL2 (The Open Group, FOKUS, IONA, Fujitsu, Eric Leach Marketing)
- Status: complete for TTCN-3 v2.2.1