Information". A collection of data structure described using ASN.1 type notation form what is known in the art as an ASN.1 specification.

[0033] The value of John Smith's personnel record can be formally described as shown in TABLE 3 below using the standard ASN.1 *value* notation for data values.

{{givenName	"John",initial "P",familyName "Smith"}
title	"Director"
number	51
dateOfHire	"19710917"
nameOfSpouse	{givenName "Mary",initial "T",familyName "Smith"}
children	{{{ givenName "Ralph",initial "T",familyName "Smith"}
	dateOfBirth "19571111"}
	{{givenName "Susan",initial "B",familyName "Jones"}
	dateOfBirth "19590717"}}}

TABLE 3. ASN.1 Value Notation of a Record

[0034] The ADEP 310 translates a data structure within the application program 305 into a stream of bytes in accordance with an ASN.1 specification and a set of encoding rules. The encoding rules can include, but are not limited to, BER and PER. The BER are defined in CCITT Recommendation X.209, "Specification of Basic Encoding Rules (BER)for Abstract Syntax Notation One(ASN.1)"(Geneva,Switzerland, 1987), which is hereby incorporated by reference herein. The PER are described in ISO/IEC CD ATA 25-2, "Packed Encoding Rules" (June 1991) which is hereby incorporated by reference herein.

An ASN.1 message representing the data structure described in Table 3 encoded using the BER and the ASN.1 specification in Table 2 is shown in Table 4. In order to perform this function, the ADEP 310 includes routines written in the same programming language as the application program 305 for encoding a data structure produced by the application program 305 into an ASN.1 message and decoding an ASN.1 message into a data structure understandable by the application program.

```
61101a044a6f686e1a01
501a05536d697468a00a
1a084469726563746f72
420133a10a4308313937
3130393137a21261101a
044d6172791a01541a05
536d697468a342311f61
111a0552616c70681a01
541a05536d697468a00a
43083139353731313131
311f61111a0553757361
6e1a01421a054a6f6e65
73a00a43083139353730
373137
```


TABLE 4 - An ASN.1 Message in Hexadecimal

[0035] The ADEP 310 can be produced by an ASN.1 compiler which converts an ASN.1 specification, such as that in Table 2, into encoding and decoding routines in the programming language of the application program 305. Where a high-level programming language (for example, C, C++, FORTRAN) is used to write the application program, the output of the compiler is source code which is again compiled with the application program 305. As discussed, the ADEP 310